TRANSCRIPT OF RECORD.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL MINING COMPANY, PLAINTIFF IN ERROR,

vs.

THE EXCELSIOR COAL COMPANY.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF CALIFORNIA.

FILED JUNE 22, 1891.

(14,698.)

(14,698.)

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL MINING COMPANY, PLAINTIFF IN ERROR,

vs.

THE EXCELSIOR COAL COMPANY.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF CALIFORNIA.

INDEX.

	Original.	Print.
Complaint	1	1
Answer	6	3
Verdict	9	4
Judgment	10	5
Certificate to judgment-roll	12	6
Bill of exceptions	13	6
Complaint	13	6
Answer	17	8
Order allowing bill of exceptions, writ of error, &c.	19	9
Evidence for plaintiff	20	10
Exhibit 1—Reissue letters patent No. 7341, granted Martin R. Roberts October 10, 1876	21	11
Testimony of Martin R. Roberts	23	14
Exhibit A—Decree in Chandler case	52	32
Testimony of P. B. Cornwall	63	38
Martin R. Roberts, Jr.	66	40
Martin R. Roberts (recalled)	67	41
George W. Hetfinger	68	41

JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C., JUNE 23, 1894.

	Original	Print.
Exhibit G—Drawing of Black Diamond Coal Company's screen	69	41
Testimony of P. B. Cornwall (resumed)	71	43
Motion for verdict for defendant (overruled)	73	43
Evidence for defendant	73	43
Exhibit B—Letters patent No. 140,677, granted Martin R. Roberts June 17, 1873	75	44
C—Reissue letters patent No. 6211, granted Martin R. Roberts January 5, 1875	78	47
D—File-wrapper and contents in the matter of reissue letters patent No. 6211, granted Martin R. Roberts January 5, 1875	80	50
E—File-wrapper and contents in the matter of reissue letters patent No. 7341, granted Martin R. Roberts October 19, 1876	126	76
F—Letters patent No. 49682, granted Wm. Sparks September 12, 1865	173	77
G—Letters patent No. 96291, granted Wm. Sparks November 16, 1869	176	99
H—English patent No. 2193, granted Samuel Plimsoll August 25, 1866	178	102
Testimony of Benjamin B. Jones	186	106
Charles Burton	193	110
Taylor Pasbe	195	111
Luther Wagner	198	113
P. B. Cornwall	220	125
Peter Barger	255	145
P. B. Cornwall (recalled)	274	155
Evidence for plaintiff in rebuttal	279	158
Testimony of L. W. Seely	279	158
John B. Morrison	310	176
John Linehan	312	177
L. W. Seely (recalled)	315	180
M. R. Roberts	321	183
Motion for verdict for defendant (overruled)	326	186
Charge to jury	327	187
Exceptions to charge	339	194
Instructions asked by defendant not given	340	194
Verdict	345	197
Assignment of errors	346	198
Stipulation as to bill of exceptions	359	206
Judge's certificate to bill of exceptions	359	206
Bond on writ of error	360	207
Clerk's certificate	362	208
Writ of error	363	208
Citation	366	209
Proof of service of citation	367	210

1 *Complaint.*

In the Circuit Court of the United States in and for the Northern District of California, Ninth Circuit.

THE EXCELSIOR COAL COMPANY, a Corporation, Plaintiff,
vs.
THE BLACK DIAMOND COAL COMPANY, a Corporation, Defendant.

The Excelsior Coal Company, a corporation created and existing under the laws of the State of California and having its principal place of business in San Francisco, California, by Scrivner & Boone, its attorneys, complains of the Black Diamond Coal Company, which is a corporation created and existing under the laws of said State of California, and for cause of action alleges—

That Martin R. Roberts, of San Francisco, California, before and at the time of his application for the hereinafter-mentioned letters patent was a citizen of the United States and was the true, original, and first inventor of a certain new and useful apparatus fully described in the specifications of the letters patent hereinafter mentioned and named therein "improvement in coal screens and chutes," and which was not known or used in this country and not patented or described in any printed publication in this or any foreign country before his invention thereof and was not in public use or on sale more than two years prior to his application for let-
2 ters patent of the United States therefor.

That heretofore, to wit, on the 17th day of June, 1873, letters patent for said invention in due form of law were, on the application of said Martin R. Roberts, issued and delivered to him in the name of the United States of America and under the seal of the Patent Office of the United States and were signed by the Secretary of the Interior and countersigned by the Commissioner of Patents of the United States, giving and granting to him, the said Martin R. Roberts, his heirs or assigns, for the term of seventeen years the exclusive right to make, use, and vend to others to be used the said invention throughout the United States and territories thereof.

That said letters patent were inoperative by reason of an insufficient specification, which error arose from inadvertence and without any fraudulent intention, and on account of said defect the said Martin R. Roberts duly surrendered said letters patent, whereupon the Commissioner of Patents on the 5th day of January, 1875, caused new letters patent for the said invention and in accordance with a corrected specification to be issued to said Martin R. Roberts for the unexpired part of the term of said original letters patent.

The said letters patent so reissued were also inoperative by reason of an insufficient specification, which error arose from inadvertence or mistake and without any fraudulent intention, and on account of said defect the said Martin R. Roberts duly surrendered said reissued letters patent, whereupon the Commissioner of Patents on the 10th day of October, 1876, caused new letters patent for the

same invention and in accordance with a corrected specifi-
3 cation to be issued to said Martin R. Roberts for the unex-
pired part of the term of said original letters patent; which said letters patent are ready to be produced in court by this plaintiff.

And by a regular chain of assignments made in writing and duly recorded in the United States Patent Office the said letters patent and all rights and liberties by it conferred were vested in the plaintiff herein before the commission of the acts hereinafter complained of, since which time plaintiff has been in the possession and exercise of said invention and has made and used the same and let the same to others to be used, to its great advantage and profit.

Yet the defendant, well knowing the premises, but contriving to injure the plaintiff, heretofore, to wit, on and after the first day of January, 1877, and up to the present time and during and within the term of seventeen years mentioned in said letters patent and after the granting of said last reissued letters patent and after the execution of the said grant to the plaintiff and before the bringing of this suit and within the northern district of California, has and does now unlawfully, wrongfully and injuriously, and with intent to deprive the plaintiff of the benefits which it might and otherwise would have obtained and derived therefrom, and without the license of the plaintiff and against the will of plaintiff, did make and did use and did cause to be made and did cause to be used and now continues to use sundry specimens of said apparatus and of machines which contained and employed substantially the invention covered by said letters patent in infringement of said exclusive right secured to said Martin R. Roberts by the letters patent aforesaid and granted by him to the said plaintiff as hereinbefore set
forth and contrary to the statutes of the United States in such
4 cases made and provided, whereby the plaintiff has been de-
prived of large royalties which it might and otherwise would have derived from the sale of rights to make and use said patented machine, and has sustained actual damages thereby to the amount of fifty thousand dollars.

Wherefore, by force of the statutes of the United States, a right of action has accrued to the said plaintiff to recover said actual damages and such additional amount not exceeding in the whole three times the amount of such actual damages as the court may see fit to adjudge and order, and costs of this suit.

Yet the defendant, though often requested so to do, has never paid the same nor any part thereof, but has refused and still refuses so to do, and therefore the plaintiff brings this suit.

Wherefore plaintiff prays judgment against said defendant for the sum of fifty thousand dollars' damages and for costs of suit.

SCRIVNER & BOONE,
Attorneys for Plaintiff.

5 STATE OF CALIFORNIA, } ss:
City and County of San Francisco, }

Martin R. Roberts, being duly sworn, deposes and says that he is the president of The Excelsior Coal Company, the corporation plaintiff in the above-entitled action; that he has heard read the above and foregoing complaint and knows the contents thereof; that the same is true of his own knowledge except as to those matters which are therein stated on his information or belief, and as to those matters that he believes it to be true.

M. R. ROBERTS.

Subscribed and sworn to before me this 12th day of November, A. D. 1888.

[SEAL.] JOHN E. HAMILL,
Notary Public.

Endorsed: Filed Nov. 13th, 1888. L. S. B. Sawyer, clerk.

6 *Answer.*

In the Circuit Court of the United States in and for the Northern District of California in the Ninth Circuit.

EXCELSIOR COAL COMPANY, a Corporation, Plaintiff, }
vs.
BLACK DIAMOND COAL COMPANY, a Corporation, Defendant. }

Now comes the above-named defendant, by John H. Boalt, its attorney, and, answering the plaintiff's complaint on file herein, respectfully shows to the court as follows:

The defendant denies each and every all and singular the allegations contained in plaintiff's said complaint and says that it is not guilty of any or either of them or of any part thereof in manner and form as the said plaintiff has therein complained against it.

And for a further plea in this behalf the defendant says that the devices and combinations of devices alleged in said complaint to have been invented by Martin R. Roberts, as therein alleged, were not nor was either of them an invention at the time when the original letters patent mentioned in the complaint were issued to the said Martin R. Roberts.

And for a further plea in this behalf said defendant says that the alleged inoperativeness of the original letters patent mentioned in said complaint did not arise from inadvertance or mistake, and that the reissued letters patent first mentioned in said complaint were not for the same invention or for any invention described in the specifications of said original letters patent.

7 And for a further plea in this behalf the defendant says that the inoperativeness of the reissued letters patent first mentioned in said complaint did not arise from inadvertance or mistake, and that the reissued letters patent second mentioned in

said complaint were not for the same invention or for any invention described in the specifications of said original patent.

And for a further plea in this behalf the defendant says that the devices and combinations of devices claimed by the said Roberts in the first claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

And for a further plea in this behalf the defendant says that the devices and combinations of devices claimed by the said Roberts in the fourth claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

And for a further plea in this behalf the defendant says that the devices and combinations of devices claimed by the said Roberts in the fifth claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

Wherefore defendant prays to be hence dismissed with his costs.

JOHN H. BOALT,
Attorney for Defendant.

8 Endorsed: Service of the within answer admitted by copy this 11th day of February, 1889. Scrivner & Boone, attorneys for plaintiff. Filed February 11th, 1889. L. S. B. Sawyer, clerk.

9 *Verdict.*

UNITED STATES OF AMERICA:

Circuit Court of the United States, Ninth Judicial Circuit, Northern District of California.

EXCELSIOR COAL COMPANY
vs.
BLACK DIAMOND COAL COMPANY. } No. 10247.

We, the jury, find in favor of the plaintiff and assess the damages at the sum of eighty-eight hundred thirty $\frac{80}{100}$ dollars ($8,830.80).

E. L. I. SCHULTZ, *Foreman.*

Endorsed: Filed April 16, 1891. L. S. B. Sawyer, clerk.

10 *Judgment.*

UNITED STATES OF AMERICA:

Circuit Court of the United States, Ninth Judicial Circuit, Northern District of California.

THE EXCELSIOR COAL COMPANY
vs.
THE BLACK DIAMOND COAL COMPANY. } No. 10247.

This cause having come on regularly for trial on the 31st day of March, 1891, being a day in the February, 1891, term of said court, before the court and a jury of twelve men duly impaneled, John L. Boone and J. H. Miller, Esqs., appearing on behalf of the plaintiff, and M. M. Estee and E. J. McCutchen, Esqs., appearing on behalf of the defendant, and the trial having been proceeded with on the 2nd, 3rd, 7th, 8th, 9th, 10th, 14th, 15th, and 16th days of April, in said year and term, and the evidence, oral and documentary, on behalf of the respective parties having been introduced and closed, and the cause, after arguments of counsel and the instructions of the court, having been submitted to the jury, and the jury having subsequently rendered the following verdict, "We, the jury, find in favor of the plaintiff and assess the damages at the sum of eighty-eight hundred thirty $\frac{90}{100}$ dollars ($8,830.90)," and the court having ordered that judgment be entered herein in accordance with said verdict and for costs:

Now, therefore, by virtue of the law and by reason of the premises aforesaid, it is considered by the court that The Excelsior Coal Company, plaintiff, do have and recover of and from The Black Diamond Coal Company, defendant, the sum of eight thousand eight hundred and thirty dollars and ninety cents ($8,830.90), to-
11 gether with its costs in this behalf expended, taxed at $—.

Judgment entered April 16, 1891.

L. S. B. SAWYER, *Clerk.*

I hereby certify that the foregoing is a full, true, and correct copy of an original judgment entered in the above-entitled cause.

Attest my hand and the seal of said circuit court this
[SEAL.] 16th day of April, A. D. 1891.

L. S. B. SAWYER, *Clerk.*

Endorsed: Filed April 16, 1891. L. S. B. Sawyer, clerk.

12 *Certificate to Judgment-roll.*

In the Circuit Court of the United States, Ninth Judicial Circuit in and for the Northern District of California.

EXCELSIOR COAL COMPANY
vs.
BLACK DIAMOND COAL COMPANY. } No. 10247.

I, L. S. B. Sawyer, clerk of the circuit court of the United States for the ninth judicial circuit, northern district of California, do hereby certify that the foregoing papers, hereto annexed, constitute the judgment-roll in the above-entitled action.

Attest my hand and the seal of said circuit court this 16th day of April, 1891.

[SEAL]

L. S. B. SAWYER, *Clerk*.
By F. D. MONCKTON,
Deputy Clerk.

Endorsed: Judgment-roll. Filed April 16th, 1891. L. S. B. Sawyer, clerk, by F. D. Monckton, deputy clerk.

13 *Bill of Exceptions.*

In the Circuit Court of the United States in and for the Northern District of California, Ninth Circuit.

THE EXCELSIOR COAL COMPANY, a Corporation, Plaintiff,
vs.
THE BLACK DIAMOND COAL COMPANY, a Corporation, Defendant. }

The Excelsior Coal Company, a corporation created and existing under the laws of the State of California and having its principal place of business in San Francisco, California, by Scrivner & Boone, its attorneys, complains of the Black Diamond Coal Company, which is a corporation created and existing under the laws of said State of California, and for cause of action alleges—

That Martin R. Roberts, of San Francisco, California, before and at the time of his application for the hereinafter-mentioned letters patent was a citizen of the United States and was the true, original, and first inventor of a certain new and useful apparatus fully described in the specification of the letters patent hereinafter mentioned and named therein "Improvements in coal screens and chutes," and which was not known or used in this country and not patented or described in any printed publication in this or any foreign country before his invention thereof and was not in public use or on sale more than two years prior to his application for letters patent of the United States therefor.

That heretofore, to wit, on the 17th day of June, 1873, letters patent for said invention, in due form of law, were, on the
14 application of said Martin R. Roberts, issued and delivered to him in the name of the United States of America and

under the seal of the Patent Office of the United States and were signed by the Secretary of the Interior, countersigned by the Commissioner of Patents of the United States, giving and granting to him, the said Martin R. Roberts, his heirs or assigns, for the term of seventeen years, the exclusive right to make, use, and vend to others to be used the said invention throughout the United States and territories thereof.

That said letters patent were inoperative by reason of an insufficient specification, which errors arose from inadvertence and without any fraudulent intention, and on account of said defect the said Martin R. Roberts duly surrendered said letters patent; whereupon the Commissioner of Patents, on the 5th day of January, 1875, caused new letters patent for the same invention and in accordance with a corrected specification to be issued to said Martin R. Roberts for the unexpired part of the term of said original letters patent.

That said letters patent so reissued were also inoperative by reason of an insufficient specification, which error arose from inadvertence or mistake and without any fraudulent intention, and on account of said defect the said Martin R. Roberts duly surrendered said reissued letters patent; whereupon the Commissioner of Patents, on the 10th day of October, 1876, caused new letters patent for the same invention and in accordance with a corrected specification to be issued to said Martin R. Roberts for the unexpired part of the term of said original letters patent, which said letters patent are ready to be produced in court by this plaintiff.

That by a regular chain of assignment, made in writing and duly recorded in the United States Patent Office, the said letters patent and all rights and liberties by it conferred were vested in the plaintiff herein before the commission of the acts hereinafter complained of; since which time plaintiff has been in the possession and exercise of said invention and has made and used the same and let the same to others to be used, to its great advantage and profit.

Yet the defendant, well knowing the premises, but contriving to injure the plaintiff, heretofore, to wit, on and after the first day of January, 18—, and up to the present time and during and within the term of seventeen years mentioned in said letters patent and after the granting of said last reissued letters patent and after the execution of the said grant to the plaintiff and before the bringing of this suit and within the northern district of California, has and does now unlawfully, wrongfully, and injuriously and with intent to deprive the plaintiff of the benefits which it might and otherwise would have obtained and derived therefrom and without the license of the plaintiff and against the will of plaintiff did make and did use and did cause to be made and did cause to be used and now continues to use sundry specimens of said apparatus and of machines which contain and employ substantially the invention covered by said letters patent, in infringement of the said exclusive right secured to said Martin R. Roberts by the letters patent aforesaid and granted by him to the said plaintiff as hereinbefore set forth and contrary to the statutes of the United States in such case made and pro-

vided, whereby the plaintiff has been deprived of large royalties which it might and otherwise would have derived from the sale of rights to make and use said patented machine, and has sustained actual damages thereby to the amount of fifty thousand dollars.

Wherefore, by force of the statutes of the United States, a right of action has accrued to the said plaintiff to recover said actual damages and such additional amount not exceeding in the

16 whole three times the amount of such actual damages as the court may see fit to adjudge and order and costs of this suit.

Yet the defendant, though often requested so to do, has never paid the same nor any part thereof, but has refused and still refuses so to do, and therefore the plaintiff brings this suit.

Wherefore plaintiff prays judgment against said defendant for the sum of fifty thousand dollars' damages and for costs of suit.

SCRIVNER & BOONE,
Attorneys for Plaintiff.

17 In the Circuit Court of the United States in and for the Northern District of California, in the Ninth Circuit.

EXCELSIOR COAL COMPANY, a Corporation, Plaintiff,
vs.
THE BLACK DIAMOND COAL COMPANY, a Corporation, Defendant.

Now comes the above-named defendant, by John H. Boalt, its attorney, and, answering plaintiff's complaint on file herein, respectfully shows to the court as follows:

The defendant denies each and every all and singular the allegations contained in plaintiff's said complaint, and says that it is not guilty of the supposed grievances therein laid to its charge or of any or either of them or of any part thereof in the manner and form as the said plaintiff has therein complained against it.

And for a further plea in this behalf the defendant says that the devices and combinations of devices alleged in said complaint to have been invented by Martin R. Roberts, as therein alleged, were not, nor was either of them, an invention at the time when the original letters patent mentioned in the complaint were issued to the said Martin R. Roberts.

And for a further plea in this behalf said defendant says that the alleged inoperativeness of the original letters patent mentioned in said complaint did not arise from inadvertence or mistake, and that the reissued letters patent first mentioned in said complaint were not for the same invention or for any invention described in the specification of said original letters patent.

18 And for a further plea in this behalf the defendant says that the inoperativeness of the reissued letters patent first mentioned in said complaint did not arise from inadvertence or mistake, and that the reissued letters patent second mentioned in said complaint were not for the same invention or for any invention described in the specification of said original patent.

And for a further plea in this behalf the defendant says that the

devices and combination of devices claimed by the said Roberts in the first claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

And for a further plea in this behalf the defendant says that the devices and combinations of devices claimed by the said Roberts in the fourth claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

And for a further plea in this behalf the defendant says that the devices and combinations of devices claimed by the said Roberts in the fifth claim of said last-mentioned reissued letters patent, if invented or discovered by the said Roberts, which said defendant denies, were prior to the issuance of said last-mentioned reissued letters patent abandoned and dedicated to the public by said Roberts.

Wherefore defendant prays to be hence dismissed with his costs.

JOHN H. BOALT,
Attorney for Defendant.

19 In the Circuit Court of the United States for the Ninth Judicial Circuit and Northern District of California.

EXCELSIOR COAL COMPANY
vs.
BLACK DIAMOND COAL COMPANY. } No. 10247.

Now comes the defendant, by its attorneys, and presents to the court its bill of exceptions, which bill of exceptions is allowed, signed, and ordered to be filed and made part of the record herein, and said defendant also presents to the court a writ of error to remove this cause to the Supreme Court of the United States and a citation citing and admonishing the said plaintiff to be and appear at the Supreme Court of the United States on the first day of the next term thereof, at Washington, D. C., on the second Monday of October next; which said writ of error is allowed and said citation signed by the judge.

Said defendant further presents to the court its bond in the penal sum of — thousand dollars, which is approved and ordered to be filed as part of the record herein.

Said bill of exceptions is in the words and figures following, to wit:

In the Circuit Court of the United States for the Ninth Judicial Circuit and Northern District of California.

APRIL —, 1891.

EXCELSIOR COAL COMPANY
vs.
BLACK DIAMOND COAL COMPANY. } No. 10247.

Be it remembered that the above-entitled cause came on for hearing before the court and jury at the February term, 1891, to
20 wit, on the 31st day of March, 1891, when the following proceedings were had:

Appearances: John L. Boone and John H. Miller, for the plaintiff; Morris M. Estee and E. J. McCutchen, for the defendant.

Plaintiff, to sustain the issues on its part, offered in evidence reissued letters patent No. 7341, dated October 10, 1876, which was the second reissue letters patent, the same having been issued to Martin R. Roberts at the date above stated.

Mr. McCutchen, for the defendant, objected to the admission of said letters patent on the ground that, in order to lay a foundation for the introduction of that patent, plaintiff must show and present the original letters patent and the first reissue which preceded this, which, it appears, is the second reissue.

Exception No. 1.—The objection was overruled and an exception noted.

The patent was introduced by plaintiff, marked Exhibit 1, and read to the jury.

M. R. ROBERTS.

COAL-SCREENS AND CHUTES.

No. 7,341. Reissued Oct. 10, 1876.

Fig 1

"The Black Diamond" Coal Mining Company
vs
The Indiana Coal Co. } Sp. 24

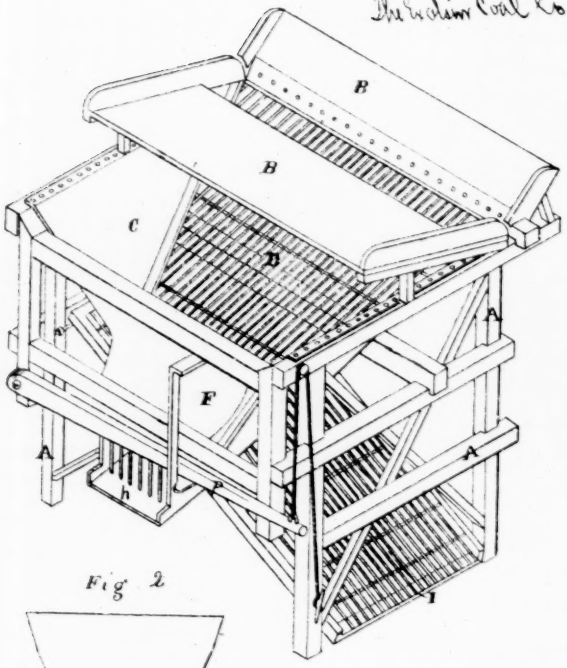
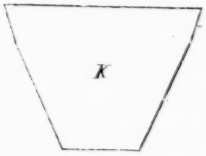


Fig 2



Witnesses
Jno L. Boone
Chas S. Page Jr.

Inventor
Martin R. Roberts
by Dewey & Co
Attys

21 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,077, dated June 17, 1873; Reissue No. 6211, dated January 5, 1875; Reissue No. 7341, dated October 10, 1876; application filed July 10, 1876.

To all whom it may concern:

Be it known that I, Martin R. Roberts, of the city and county of San Francisco, and State of California, have invented certain new and useful improvements in a combined portable hopper, chute, and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

Previous to my invention, in unloading vessels of coal the coal has, for the most part, been hoisted from the hold over the bulwarks, and dumped upon the wharf or upon the coal previously dumped, or, if chutes were used, such chutes were fixed; nor, so far as I am aware, has a movable chute ever been known or used by which the coal could be received from the vessel at any point in the wharf, and be screened and delivered to the cart.

My invention consists of a portable apparatus for receiving coal from the bucket by which it is hoisted from the hold of a ship, and for screening and delivering it to carts on the wharf, said apparatus being adapted for ready removal from place to place, when required.

By this apparatus I am able to save repeated handlings and consequent expense, and the breakage of the coal, and the apparatus can be changed from one point to another where the vessel may be placed.

There are further and subordinate objects to be secured by my invention, and the improved details devised for these purposes will be set forth more fully hereafter.

(Here follows diagram marked p. 22.)

In the drawings, A A represent a strong frame, which is properly stayed and braced, so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards, B B', at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated, so as to provide a space, C, between them, for the purpose hereinafter described. These boards form what I call the hopper. The board B' forms an extension to one side, D, of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes toward the opposite side of the frame, and is con-

structed of parallel wires, secured at short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir, and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted toward its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into the cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen, and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it, on account of not being small enough to pass through the meshes, will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf, in order to be placed in position to receive the discharging cargo of different ships; but when moving it from one wharf to another, I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any vehicle.

The hopper B B′ is as long as the machine, and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine, and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall, and is thereby prevented from being broken and pulverized. The outlet of the hopper B B′ extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D, and has to pass its entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper B B′ make it a success in receiving the contents of the bucket by which the coal is hoisted from the hold of the vessel, a result which I believe was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position, and making it large, several advantages are obtained. Among others, a large screening surface is obtained. The gate *h* is sufficiently high from the wharf to allow vehicles to be placed so as to receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf; and the reservoir O is large enough to serve as a

store-room, so that, in case of temporary delay in the vehicle carrying the coal to the yards, the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal-pile.

Having described my invention, what I claim, and desire to secure by letters patent, is—

1. A portable combined coal receiving, screening, and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described.

2. The receiving-hopper B B', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

3. The metal blank or false bottom K, in combination with the receiving-hopper B B', reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

4. The combination of the hopper B B', for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth.

5. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially as is herein set forth.

MARTIN R. ROBERTS.

Witnesses:
J. L. BOONE.
CHAS. G. PAGE.

23 Plaintiff then called as a witness MARTIN R. ROBERTS, who testified as follows:

My business is using and handling the coal screens for the Excelsior Coal Company, as president of said company. I have lived in California since 1849. My trade or profession through life was building ships, running ships as mariner, master of them, and so forth.

Plaintiff's Exhibit 1 is a patent issued by the United States to me for the invention of a coal screen, issued in 1873. Prior to that time I was the owner and running a line of ships to the sound; had been in the sound at the district where these coals were exported from. As I stated, I have the honor of saying that I came from a race of mechanics in my ancestral line of life. I had three ships in the employ of this transportation of this particular coal from the district of the sound or Washington Territory. The ships were discharged in the usual way here and it resulted in a wonderful loss. The usual way was to dump the coal on the wharf in a pile, contending first with the strength of the wharf, and next the coal was very largely broken, being of a bituminous, tender character. We were allowed only to discharge so much on the wharf. Frequently ships would only be able to work a few hours. Another inconvenience and unprofitable element was this: when dumped in a pile the gravity of the finer particles settled themselves a little, but that which was sufficiently large to roll off of a cone would be found on the outside, and the foreman and the clerks of the house were there to see that the men took the finer lumps, which were in some degree objectionable to the purchaser. There was no way, however, to make the coal average at all. It was sold as clean coal, screened in the yard. It was sold also as clean coal selected on the
24 wharf, but it left a pile of coal in the end which no person would purchase, which the receiver of the coal discharged as clean coal. The dirty coal was naturally not suitable as a merchantable article to sell in any status of mercantile transactions, known as clean or dirty, or anything. It was a hotch-potch combination. It was a new order of delivering coal and a new way of discharging it, as in New York, where I had carried coal as a master of a vessel: the carts would back up under the tub and the tub would deliver into the cart and the cart would go away, and that composed the delivery in New York: but here the coal was dumped right out on a pile. The merchants were in dispute in reference to the character of the screening in the mountain—in the mines. Some said it was not screened enough and others said it was screened fair, but it was a general——(counsel interrupting). I am familiar with Eastern coal. One is nut and another is egg and the other is lump. It is of a character much harder, more resembling rock, than our coals that we were handling that I have referred to here. Eastern coal had no tendencies to slacken, so that when the ship would leave Puget sound and come here our coal would slack, but theirs would remain indefinitely and there would be no slack about it. It was in a loose state of condition altogether; so much so that you would

sell a pile of coal representing sixty per cent. of the whole portion of the cargo as screenings; yet that pile that was sold for screenings contained probably thirty per cent. of good, merchantable coal. Labor was high here; it was impossible to shovel it against a screen; there was too much speed required to justify such conduct in the handling of a large cargo of coal. I was largely interested in ships that I owned. One of them I had constructed myself and owned the whole ship, and the detention was very severe, really costing as much as the cargo. I had a little ship that lay twelve days to discharge four hundred tons. One single ship was twelve days
25 discharging four hundred tons. Since I have had this machine I have discharged through it—well, I have discharged a steamer carrying two thousand four hundred tons in two days. That is the science and condition of the art that may be alluded to as the effect of this process. Of course, these two instances are extreme, except the fact of discharging these steamers carrying two thousand tons of coal coming in here and are discharged in two days. That is practical now and they put four or five of those machines to a ship, and they handle coal as I have said.

The way I came to get up this machine is as follows: In digesting all the circumstances and looking through what might be done I conceived the idea that I was able to construct a device that would overcome, at any rate, the average part, so as to have a chute and have a blank, and put it in exercise on the average, and then, by mere thought, I conceived that a screen at the bottom would deliver and screen coal.

Counsel for plaintiff handed the witness a model.

Witness answered:

This is a model of my machine, with a fair attention to proportion; represents the machine that I delivered in Washington to procure a patent upon. It is a correct model.

Mr. BOONE, for plaintiff: Now we offer this model in evidence, if the court please.

Mr. MCCUTCHEN, for defendant: We would like to examine the witness a little, if the court please, before this is offered in evidence.

Mr. McCutchen proceeded to examine the witness as follows:

Q. Is that (referring to the model) a correct model of the drawing shown in your second reissued patent, which has been offered in evidence?

A. Yes, sir.

26 Q. Is it?

Plaintiff's counsel responded: As far as it goes, we admit that——

Mr. ESTEE: Never mind, now, Mr. Boone, let the witness testify.

By Mr. MCCUTCHEN:

Q. Do you state that this is a correct model of the drawing shown in this reissued letters patent?

A. Yes, sir; I think it is, as near as models do represent; I think so.

Q. What is this device or mechanism which is represented here—these parallel lines in the drawing? I ask you simply as to that one mechanism or device. What is that?

A. You mean these bars here?

Q. No, sir; I mean these small lines.

A. I also included in my patent the device by which I have the patented privilege to patent a screen under there (indicating).

Q. I have asked you what it is. Now, is that represented upon this model?

A. It is the device that ships in and ships out.

Q. Now, answer that question. Is that represented upon this model?

A. That part of it is not represented here; that part of it is not in this case.

Mr. McCutchen: We object to this model. They are bound to produce a model in accordance with their patent.

The Witness: The wheels are not there either.

Mr. Estee (after argument): We make the point, first, that this reissued patent was not issued in time, and, second, that it was not issued for the same thing as the original patent, and therefore it is very important that in every step in these proceedings the model should be a model of exactly what plaintiff claimed to invent. We are entitled to it because counsel has read to the court the patent and explained every device, and here in the model the most important part of it is left out.

27

The Court: I will shorten this matter by admitting the model in evidence. I see no objection to admitting this model.

Exception No. 2—To which ruling an exception was taken by defendant's counsel on the ground that the model is not a correct model of the machine described in the patent sued on in this case; that it does not represent correctly the combination of devices forming the patent upon which this action is founded, and that it is therefore irrelevant.

The court still admitted the model in evidence, to which another formal exception was taken.

(Marked Plaintiff's Exhibit No. 2.)

In explanation of the model just introduced witness stated:

The coal from a swinging tub passes into this hopper that receives the coal from the ship. It passes through under this screen over here (showing), and here it is retained until the next action, which is: A cart passes under this, and a person lifts this and gives a quantity in the cart as the carts require it. The coal is received in the hopper B B'. This hopper is called in the patent B B'. This receives the coal, and the coal slides down through here (showing) and is retained until a cart is here, and here under the control of this gate is delivered in quantities to suit the receiver cart. The coal passes and is held in check by a gate called *h* in the patent de-

scription, and this is worked by a tackle, which is not here. It is insufficient to that extent. By a tackle reaching from a bolt put in here (showing) and a block here (showing) and a man
28 stands here (showing), and this block here hoists this gate. It is sufficient in its own weight to stop and check the coal from going too fast; otherwise it is the control of the delivery as to the quantity it is intended to be delivered by the man who is here operating this little block and tackle. The object and purpose of this reservoir, marked in the patent O, is a receptacle. It may be a blank piece of iron, which the patent alludes to as "blank K," that lets the coal go in an average to the cars. What I mean by an average—its weight sold by the merchant to the jobber or coal dealer, including the natural proportion of dirt and coal—screenings and coal. It is all coal, but they call it screenings. It is not screened. Yes, sir; it is not segg*re*gated. Lumps of fine coal go together by the device of putting the blank in here (showing). By "in here" I mean between B B' top and the reservoir O, which is in here, including clear down to the chute. The reservoir is between the gate *h* and the hopper B B'. The object of the upper hopper is to receive the coal as it falls from the ship. The use of the reservoir is also to receive the coal and hold it subject to the action of the gate *h*. The office of the gate *h* is to control the reservoir O from ejecting the entire contents of it into the cart—that is, the gate *h*. If there was no gate *h* the effect would be to cover the cart, horse, and all with coal. If there was no reservoir between the hopper and the gate there would be no place to carry the coal ready to deliver a load of coal into the carts. The coal is received here (showing) and here (showing). This is the place the coal is first received, and it passes down over into this—this particular blank or screen. It goes in here and there it rests. This machine in practice holds from eight to ten tons of coal. When a cart is ready to receive the coal the man here lifts the gate *h*—the man that is under the chute lifts the gate *h* and there manipulates this gate until he gets the cart loaded.

29 By plaintiff's counsel:

Q. What is done in the operation of dumping coal into the hopper, what effect has that upon the loading and carrying away of the coal, if anything?

A. Well, only that it is all a reservoir. This is a reservoir so far as this coal backs up here and chokes it. I am saying this—I want to get this so that it can be written down. It is received here (showing) and naturally fills the reservoir O, the reservoir first being full, and, it being full, the ship stops until some further discharge takes place through the gate *h* and relieves a space necessary to receive more coal. The machine I have will never stop a ship, but go right on discharging, supposing no part of it gets out of order. It will keep the ship working continuously; never stops, providing there is no breakage or break-down or anything of that kind. The discharging of the ship is continuous. As to taking the coal away from the chutes, that depends on whether there are

sufficient carts hauling it away. We generally keep carts enough to keep the machine working. We get eight or ten tons in the machine. The ship would have to hold up a little until the carts emptied it if we didn't have carts enough. It is like a siphon. You have got to have something in at that end to get it out of this one. The empty machine weighs from four to seven tons.

By plaintiff's attorney:

Q. When you finish unloading a ship on the wharf and desire to unload a vessel on another wharf, what do you do then?

Mr. ESTEE: We would like to ask what this inquiry is about.

Mr. BOONE: It is simply to show whether the machine is portable.

Mr. MCCUTCHEN: We object on the ground that the element of portability is not patentable.

30 Mr. BOONE: We don't claim that it is.

The COURT: I don't see any objection to the question.

Exception No. 3.—Mr. ESTEE: We note an exception on the ground that it is irrelevant, immaterial, and incompetent.

The WITNESS: To move my machine. In the first instance I took it down—all apart—and put it up on the wharf. I commence on the axles and bolt them across here (showing) and haul it like a wagon. That is expensive, inconvenient, and slow, and I had iron castors cast to move it on. The width of the machine is twelve feet; its height, twenty-two feet. After my machine was introduced into use the stevedores positively refused to use them. I made the necessary arrangements and everything and invited these people to see what I did. I then charged twenty-five cents a ton for the use of my machine. The stevedores' rates to me also were twenty-five cents a ton. They created a great deal of excitement to induce the coal interest to make a trial. I gave each coal operator a chance to use my machine without any cost and worked it for them in the discharge of a ship. In one or two cases I gave two ships a discharge without any price. I built three before I had them accepted. I first set up a machine in January, 1874. I took a machine down to the Mission-street wharf and there erected it on New Year's day, and it commenced to work on a bark called the Osmond on the 2nd day of January without any charge to the bark. Well, this was the last day of the year 1873 that I took it down and erected it on New Year's day of 1874. In June, 1873, I got the patent, and it was the January following. It was put up on the bark called the Osmond at the Mission-street wharf. There was a good deal of talk about whether it would work or not. You can understand a great deal of the clamor about it.

By Mr. BOONE, plaintiff's attorney:

31 Q. State the facts. What was the result?

A. That ship moved about one hundred and fifty feet from one end, where it was at the wharf, to the upper end, and I had discharged them during two days—the 2nd and 3rd of January, I

think—when the ship was ordered by the wharfinger to move. Unloading that first ship at the rate of nearly two hundred tons a day while we were unloading with that machine. I declined to move it up to the next berth where they were going to take out the rest of the cargo, because I had no preparation to move it; but they said, "Any men that you can get to move that machine up"—— (counsel interrupting). I did move it up. I gave a man twenty-five dollars—a house-mover—to move it up two hundred feet, and it went to work the next day, and it discharged that ship entirely. The next day I hauled one of my own ships in and discharged her right through, and she has been at work ever since. The machines are a success. These machines have gone into use. I suppose that three-fourths of the coal that is delivered for the city's consumption has passed through these machines. I know the defendant in this action. The defendant is The Black Diamond Coal Company. It is not a person; an artificial person.

The witness, shown a model, states:

This is a model of the machine the *the* Black Diamond Coal Company is now using two of. It is a model certainly of one; probably of both. This model was made by a man that built my screens.

Mr. McCUTCHEN: We make the objection that the model shown here is not the device represented in the plaintiff's patent or the equivalent of that device.

Mr. BOONE, for plaintiff: We don't offer it for that purpose.

32 The COURT: There is no objection to this being introduced.

Exception No. 4.—Mr. McCUTCHEN: Note an exception.

Witness, taking the model, says:

This (indicating) is what represents the B B′ hopper. This would represent a part of the same reservoir system, and here is what we call the reservoir O. It answers the same purpose. That is the space between the two gates in the Black Diamond device; yes, and including this (indicating), too. It includes the whole. The upper hopper is designed for the receiving hopper. It is for receiving the coal. This gate confines the coal—confines it there. That is all there is to say about it—that is, it keeps the flow from making a rush. The size of this machine is as follows: The hopper is eighteen feet from the ground; the machine is fifteen and one-half feet wide. The coal passing through the machine is delivered from a swinging tub from the yard-arm of a ship. The tub is first hoisted up vertical, and then there is a yard-arm runs from there, and it swings over onto what sailors call a burton, and then it dumps. The hopper is supplied, as I have said, with coal from a swinging bucket out of the hold of a ship. Suppose this (indicating) represents the hold of a ship. Under the yard-arm is (indicating) a tub which follows up that line until it is what the sailors call "high," and then the burton man, who is with a rope running from the top of the yard-arm, lets go of the engine part of

the rope that is hoisting the tub, and with a swing the tub gets over the hopper and is then upset into it. When they were first constructed they were constructed to screen coal. From here to there (indicating) was a screen (referring to model). The length of the chute, as you might term it, was a screen-bottom. They used it for a considerable length of time; don't know how long exactly; don't know when they made any change in it. They afterwards covered up the screen with boards, and finally took the screen out from under, and I believe the screens are now constructed entirely of wood. Defendant's machine delivers coal into carts and wagons. Referring to Plaintiff's Exhibit 3, claimed to be a model of defendant's machine, this (indicating) is the hopper. We term it B B'. We find also the reservoir O. By the reservoir O I mean the space between the two gates in the defendant's machine. I find also a bottom covered by a metal blank or what is the equivalent of the metal blank in the patent sued on. The coal is retained by a gate above the reservoir O, as we call it. When the bottom is put into our machine the effect is to retain the coal when required, so that it can be passed through the gate *h* into carts without screening. The effect is the same in defendant's machine. I find also in defendant's machine the chute F—that is, I state that the chute F in defendant's machine is the equivalent of this of mine. The equivalent of that gate which falls down makes the whole thing, the chute F practically working the same as the chute F in my machine. I find the equivalent of the gate *h* in defendant's machine—that is, it controls the coal as a gate or door would. It is a movable construction competent to control the coal and deliver any quantity as a cart requires it when this gate is down. The chute F and the gate *h* when it comes down forms the chute F. The whole action is the chute. I think the defendant occupies a portion of the southerly section of the water front, first on one wharf and then on the other—Fremont St., I think. I have seen defendant's machines possibly as often as every other day; examined them well enough to know their character. Defendant uses a swinging tub. Coal goes into this receiving hopper in defendant's machine. Sometimes it piles up full; frequently is piled up when the ship is in active work. It varies; sometimes the carts are ahead of the teams. Defendant's machine would probably hold fifteen tons of coal. That is the receiving hopper (pointing). The coal is here, the horse is here, and the cart is immediately under this chute. Don't think that the lower hinged apron is of much use in defendant's machine. It is principally used when it is down. It projects from there, the end of the chute, into the cart. It merely projects the coal farther into the cart than it would without it; it lengthens the chute. The upper gate is used to let the coal slide into the chute from the reservoir in defendant's machine. A man in charge of the machine operates it. He stands here (indicating). He stands on the side of the machine—on the ground or anything else that there is to stand on, or the wharf—and he operates the machine by lifting it up if he wants a big load and if he wants the coal in here (indicating). The space above the gate—that is, be-

tween the gate and the hopper in defendant's machine—is used as a reservoir. The necessity for such a reservoir is that it acts in the way that if you put the coal in it will choke and might not run, and that contracts it enough, just the same as my gate. It contracts it enough to give it a movement there, so that the whole thing will move. By the whole thing I mean the whole body of coal. The office of the reservoir above the gate is the same as the reservoir in the other machine. It retains the coal. The only object of the lower portion of defendant's chute is to extend it. I suppose the machine would work without it, because I used it without it. I think defendants run their machine with a screen until it probably wore out, and then they didn't put in any new screens. When the defendant's machines were first made they had screens in the bottom. Afterwards they put solid bottoms in, but I have not
35 the date at this time. I saw defendant's machine while they used a screen in operation. Defendant's machine when so operated screened the coal just the same as the others. The screenings dropped in here (indicating).

By Mr. BOONE, plaintiff's attorney:

Q. How long have the machines which the defendant now has at its wharf been used by them in the condition in which they now are?

Mr. McCUTCHEN: We object to that on the ground that he can only show the use during the life of this patent.

Mr. BOONE: I am attempting to show the use before the expiration of this patent. I want to find out how long they have been in this condition.

The COURT: Well, let us get at the fact. Answer the question.

Exception No. 5.—Mr. McCUTCHEN: Note an exception.

The WITNESS: I can get the dates exactly from my books, but I didn't bring the books with me. I don't attend to that myself; my son attends to that. That is evidence that can be introduced here exactly as to dates. I examined these machines of the defendant a year and a half ago; have built twenty-four machines; three of them are in Oakland and the others are in San Francisco. These have been built during the life of the patent. For the first three or four years I built about seven. Since then I have constructed about one every year. This year I have constructed three—that is, I have completed two and I am now building the third. I built two within the last sixty days—thirty or sixty days. One machine also went to Honolulu. I did not construct it, but I supervised the construction, which substantially amounts to the same thing. I have also laying on my desk instructions to construct some to go to Australia. The demand has largely increased, very large, until now it is an absolute necessity, indispensable in fact, to the business of handling coal. The people have got more lazy, and they don't want to shovel coal. You can hardly get a man now
36 to go on the wharf and shovel from a pile of coal into a cart. More than that, it would be to the merchant's inconvenience,

as I related before, that they could sell some lump coal that was impaired as to quality. The shovel is not wanted by the men. They want to get the carts and load it and finish their work. All coal, including coke, is now passed through this machine. I have not had enough to supply the demand. We have never made a contract as to royalty; never have invited such contracts. We have never accepted of any machines except ours to be in use.

By Mr. BOONE:

Q. I am speaking of your own machines. Have you ever fixed royalty?

A. No; we have never had any fixed royalty. For eight years I was so embarrassed in connection with the use of my machines that I screened for almost nothing for awhile. The rates which I had charged when it came to a settled action differed from the price of twenty-five cents and I reduced it to fifteen. I reduced it to fifteen because they infringed so much.

Q. Who infringed?

A. Mr. Cornwall was one; Mr. Flannigan was one; Mr. Chandler, Dunsmuir & Co., Berriman & Co., Berriman & Doyle. I received one hundred dollars for screening the coal brought by the ship Germania. This manner of doing run me in debt for many years.

By Mr. BOONE:

Q. What I want to get at is, Captain, whether you have any fixed royalty which you charge for discharging coal from a vessel through your patented machine.

A. No, sir.

Q. Have you ever had any settled price?

A. Yes, sir.

Q. State what that settled price is, and, if it has been changed, why you changed it.

37 A. It has been varied from time to time, but the settled price that I should call now—the settled price was ten cents a ton. I get that now for all the coal we screen. Our company is a corporation. Our company has taken action in this matter, which is a matter of record. I can produce that record. This patent has been in litigation in the United States court here. The first case was Roberts against Flannigan and Mann.

Q. What other litigation have you had besides that one?

A. I had a suit against R. D. Chandler & Company, Roberts *vs.* Chandler. I had a suit against the Oregon Improvement Company. These were before the matter was incorporated. Roberts *vs.* Flannigan and Mann and *vs.* Chandler, The Excelsior Coal Company *vs.* The Black Diamond Coal Company—those are the three suits. There was another suit against McKinley & Company, but this was compromised. These are all the suits I remember. These were tried here. The case of Roberts *vs.* Chandler and The Excelsior Coal Company *vs.* The Oregon Improvement Company were tried here before a jury.

Mr. ESTEE: What is the object of this? The testimony is irrelevant.

The COURT: I don't know whether it is. He has got it all out. I suppose it won't amount to anything unless he shows some relevancy.

Mr. BOONE, for plaintiff: I will produce the records of these cases to show what was done.

The WITNESS: The stevedores were originally opposed to the use of my machine. The stevedores have used my machine.

Cross-examination of Captain M. R. ROBERTS:

I never had any experience in screening or delivering coal before my patented invention; never had seen it done before—that is, by my machines. I thought your question pertained to this
38 class of machines at the wharf. Yes, I have been quite well acquainted with the way coal was handled around Philadelphia. I knew about the handling of coal in this State. I have been up to the sound and saw them there. I visited the Wellington mine before 1873. I visited the Seattle mine and a mine they call the Newcastle mine, at Puget sound. I visited them once before 1873. I was at the Seattle mine about four hours. I was at the Newcastle mine probably six hours, and then at the other mine not more than an hour. I did have business in visiting these mines; went there on business in each case. That visit was made before this invention, but I am not able to say how long it was before. At that time I was sailing the bark Iconium, the barkentine Harrison, and the bark Mary Belle Roberts. I owned them all. I didn't go up on either ship; went up overland by the stage. It was before the railroad was built. Only made one such trip; don't remember the time well enough to make it definite. It was in the neighborhood of 1870. I believe it was between 1870 and '71 or '71 or '2; I wouldn't be exact. At that time I visited the town of Seattle. I only remained there a few hours, while the steamer was passing. I went overland by the stage route and went out to the Seattle coal mines with a foreman by the name of Mr. Densmore, now the foreman of Mr. Garrett's brass foundry. He was the foreman then operating the Seattle mine and they had a strike, and I had a ship chartered to load there, to come there, and I stopped the strike; went there with this gentleman to the Seattle mine; don't know the exact distance of this mine from Seattle. I went and returned the same day. I was in the neighborhood of Seattle for two days; went up there to negotiate a loan of fifty thousand dollars on the Seattle mine, and I examined it with reference to that loan, whether it was a good one or not. I was interested and looking into all the
39 questions concerning it, for I was invited to negotiate a loan of fifty thousand dollars, and James Phelan agreed to let them have it. I was negotiating for carrying all the coal of the Seattle mine, and in that interest I will say I was interested in the handling of the coal. I stayed in the town of Seattle about two days. I was a good deal around the wharves. I had two ships

close by Seattle at that time; did not see any device for screening and delivering coal at that time; don't think there was any wharves at Seattle at that time. There were jetties put out. I can't testify that there was any device for screening and delivering coal at Seattle at the time. I didn't see any, anyway. I think I would have seen such a device if it had been there. My eyes were wide open to everything that was going on that referred to the coal business. I visited the Newcastle mine at that time. I was a casual visitor and can't tell you just the time I spent there. I visited these three mines at that time. I spent some time at the Newcastle mine and spent some time at the Seattle mine. I don't know who was in control of the Newcastle. I know the person, but don't know his name. The Newcastle mine is about one hundred and twenty miles from Seattle; didn't see any mechanism for screening and delivering coal at the Newcastle mine and saw nothing that I remember in the way of a screen or machine for delivering coal at the Seattle mine. I did not visit any coal mines in California prior to 1873. After I had had the suit, which must have been after my reissue patent, I went up to the Black Diamond coal mine, at Mount Diablo. I think that is the only mine I ever visited. I saw a great big house there, more for sorting coal than anything else, and some screening and manufacturing coal. I can't describe the mechanism I saw there. No man could without models and various other devices, in my opinion. I can't describe it by looking at model 2. It was not at all like that. I could not describe it, not to make it in any degree plain. They picked the rocks out of it and then sent it into the bunker. As far as I remember, it seems to me that it was a hole in the platform and cars went over and dumped it into a place, and then it run on down past the men, and they had boards that stopped it as they sorted it a great deal from what they call bone or rock. They had to be picked out in that way. They sorted the coal from the dirt. I didn't see a receptacle into which coal was delivered in this shape, like mine. I did see a receptacle where coal was delivered into. I didn't say that there was a screen under the railroad. I saw a screen there at that time. I don't think the screen was used in connection with the hopper.

By Mr. McCUTCHEN:

Q. Well, then, do you understand that the receptacle for coal was so arranged as that the coal passed through it onto a screen beneath?

The WITNESS: I can't answer that yes or no.

Q. Why not?

A. Well, I think I know what was there, practically. I think I do. I would be willing to give my information as well as I understand it.

Q. Well, if you don't know what was there it is easy enough to say so.

A. Well, maybe I do know. I have got a right to guess or know.

Q. If you can't say yes, *that* you can say no.

A. No, sir. Frequently propositions enter a mind that cannot be answered yes or no.

Q. Well, now, I will put the question to you again. Was there underneath the receptacle into which the coal was dumped at the Black Diamond mine a screen over which it passed when it left that receptacle?

41 —. That coal, as I understand it, was dumped into a big, massive chamber, what they call a bunker, and then it was thrown off onto screens and sorted; and they connected with a bunker, and boys and men were sorting it. Now, then, it is dumped, and these screens are connected with the bunker, but they are away off out of the way of the dust and dirt that are dumped into that receptacle.

Q. Then you did see that machine over there sufficient to let you appreciate what it was?

A. I saw the machine as I described it.

Q. Now, I ask you if immediately under that receptacle there was a screen over which the coal passed for the purpose of screening it before it went into the bunker.

A. No; I think not.

Q. Where was the screen which you saw there?

A. Well, there is the bunker (indicating) and here is the screens running out from it, and as they want different kinds of coal they send it down and the boys and men screen it and sift it. As I understand it, the coal did pass over those screens into a delivery sort of place. It was a manufactory of coal. Yes, it passed over a screen. I think so. It got out of the delivery place by a device of some kind. Some dropped down a chute.

By Mr. McCUTCHEN:

Q. Then I understand that you saw these four things there: You saw a receptacle into which the coal went, a screen over which it passed, a long trough into which it went from the screen, and a gate by means of which it went from that long trough into the vehicle into which it was to be loaded. Is that true?

A. I think you are giving an erroneous opinion of my seeing. Yes; there were screens, and there was bunkers and hoppers. This was a big system. I don't think I saw it enough to describe

42 it. The way I looked upon it it looked to me to be a great big house, in which the thing was dumped. Those are all over the world.

Q. There are all over the world, are there, devices which consist of a receptacle into which coal goes, and beneath that a screen over which it passes to be screened, and under that receptacle and beneath that screen a gate into which the coal passes into vehicles. Is that true?

A. Yes, sir.

Q. And that was so all over the world at the date of your invention?

A. At the date of my birth, I guess. What I understand by an

equivalent in mechanism is that any mechanical skill that will accomplish the same purpose substantially in the same way and by any device—numerous devices—accomplish the same purpose. That is my interpretation of what I mean by an equivalent. I did tell the jury this morning that the office of this gate was to control the coal in running out. The first gate in defendant's exhibit is to keep the coal back from running right out and to control it, so that the delivery will be in some kind of control. I don't think it performs any other office than that. I think it does not. I think any device which would prevent the coal from running over the end of a chute would be an equivalent of my toothed gate if used in combination with a machine for a certain purpose.

Q. Then any device used in combination with this hopper and with this gate here at the end for the purpose of preventing coal from flowing over there would be an equivalent of your toothed gate, would it?

A. "Any device" is rather broad.

Q. Well, could there be any device?

43 A. Well, if a man was to back a horse up in there he would stop the coal, but that wouldn't be an equivalent. He would catch the coal behind the horse, but that wouldn't be an equivalent, and yet it stopped the coal.

Q. Does it make any difference where that gate is placed in order to make an equivalent?

A. No, sir; I think not. If it was up in the chute, up in this reservoir, or anywhere there that it would practically control the coal in such a way as to keep it from a general rush and overloading, it would make an impractical machine.

Q. Now, is your toothed gate placed there for the purpose of preventing a rush and overflow?

A. Yes, sir; my toothed gate is placed there for the purpose of preventing a rush and overflow of the coal. My toothed gate *h* performs the same office as the gate performs in defendant's device. There is practically no difference as to the office which the gate in defendant's machine and my own performs. There is no suggestion, I believe, in my patent anywhere that that toothed gate *h* is to prevent a rush and overflow, but whether it is put in the patent to control the delivery of the coal I do not know. I think it may be in there. It is in there.

Q. Now, I understand you to say that by placing this gate here (indicating) you create a reservoir where—in front of it or back of the gate?

A. Back of it, and if the gate was up, there would be a reservoir there, too. If you shut this (indicating) up and let this (indicating) come down and fill them, they are both reservoirs. You have got two gates *h* if you like. I talked with my son about this model during recess. I have not changed my mind as to the loca-

44 tion of the reservoir. I did say that the space between the two gates formed a reservoir and it is a reservoir.

Q. Didn't you say that the space in defendant's exhibit corresponded to reservoir O in your patent?

A. In a certain degree, yes. If you open that (indicating), you have got a reservoir, too.

Q. Didn't you say in your direct examination this morning that the space which corresponded to the reservoir O in your patent was the space between those two gates?

A. I may have intimated that in my answer.

Q. Didn't you repeat it three or four times?

A. You pointed to the reservoir, and I had a rule, and I pointed with the rule and said, "Here is the reservoir," and "Here is the reservoir." I did say that the space between the two gates was the reservoir, corresponding to the reservoir O in my patent. I did say that the reservoir O was up here (indicating). I have not made any change. You understood me. If you take that gate up in defendant's device, you make that equivalent to my gate *h*. If you shut it down, the reservoir comes here (indicating). That is the way I intended to be understood. I might have given testimony of another kind. I don't know about that. Let me explain what I mean. If the gate in defendant's device was out of existence, I would claim that the lip at the lower end of the chute was equivalent to my gate *h*. It would become my gate *h* because it practically controls the coal. This lip or lower device on defendant's chute prevents the rushing of the coal. If it had a good run it would run over the gate. Now, it depends on another circumstance entirely, which is how much coal is in there. If it is full of coal, it requires this gate *h*—that is, under some circumstances this lip at the lower end of defendant's chute performs the same function as the gate *h*. If the gate *h* were placed at the orifice of the hopper on hinges, it would hardly work, for a mechanical reason. If you want to put a gate there, the coal flowing into it would burst it all to pieces. It might work to stop the coal and let it out, but it would not stand there above two hours. It would hardly be a practical thing, because you couldn't shut it, perhaps.

Q. Well, none of these things work except your patent, do they; none of these coal screens?

A. Well, I don't want to answer a little bit of sarcasm like that, for it don't become a court-house; don't attempt anything of the kind. Go on with your questions and I will answer them. I never was in school a day in my life. If you put a gate at the lower end of the hopper it would not stay there. I have put checks up at the lower end of my hopper, but a hinged gate at the lower end of the hopper would not work for delivering into carts. My gates that I have devised up here (indicating) is this: If I desire to keep a certain amount of coal, the question whether I desire to deliver it average screened, the gates are raised and the coal is kept as far as this will serve to keep it, and it passes into this (indicating) then and is screened. If you lift the gate at the lower end of the hopper the coal would go down with a rush. You get it started and you can't shut it again. It is not a fact that when we used our machine we raised the gate at the lower end of the hopper when we loaded each load. We control it simply. It is caught here (indicating),

and then it is delivered into the carts. We check it a little. The office of the gate is to stop the flow of the coal. The object is to have the coal delivered as you want it screened. The object is for the better screening of coal. If the coal passes over the screen in moderate amounts, it will be well screened; if not, it will not screen good.

46 Q. Then you put these gates up here (at the bottom of the hopper) to check the flow of coal so it will flow over in moderate amounts?

A. Yes, sir; we used them for years without this gate, and without this gate it will not screen the coal as well. If you pass a small amount over the screen it screens it better than if you let a large body go over. I ran my machines about seven years without the gate at the lower end of the hopper. I think I have a machine now in use without a gate at the lower end of the hopper. I have twenty in use. I don't know exactly where the one is without a gate in the lower end of the hopper. I think I have got one which I have not put a gate on. I don't know where it is. My machines are all over the city. Where I have that lip at the lower end of the chute I have not got the gate *h*. It is a substitution. It performs the same office as the gate *h*. I made the change because the coal ran small, and when a man was here (indicating) at the lower end of the chute it went into his face and they liked that lip better. If you let a lot of coal come down here (indicating) there is a lot of fine dust, and, a man standing here (indicating), it splutters and flies in his face. The office which the reservoir O in my machine performs is that it is a receptacle for the receiving of the coal. It makes a part of the whole. You couldn't dump coal onto that slide that way. It would bust the front and everything else. The coal has got to be received, and after it is received it has got to be handled, and the reservoir O here has to hold it and let it pass in so it will not bust everything all to pieces. The reservoir O in my machine is a place for the storage of coal.

Q. Isn't it made large expressly for the purpose of using it as a storage-room?

A. It would be just as well if it was a single chute right down.

47 Q. The- the question of size don't cut any figure in it?

A. It would be just as well as if it was a straight chute.

Q. As long as you have the different elements it don't make any difference what size it is?

A. In the practical working, you mean?

Q. Yes.

A. Well, it might make some difference; yes. It would not hold as much coal.

Q. In the utility of the invention does the size cut any figure?

A. That is for the men in Washington to decide.

Q. I am asking you about it.

WITNESS: I say that is a patent question for them to answer in Washington. I think the size plays no part if it is practical. The

accomplishment of the same thing with the general principle or equivalent.

Q. Size does not make any difference; so that if this hopper were three feet square instead of twelve feet square it would be an equivalent of this, would it?

A. No, sir; and the reason is that you could not dump the swinging tub from a ship and make it a practical machine. Sufficient size of hopper to receive the contents of the swinging suspended tub is an element of the machine—the accomplishment of an end in view. If a man should present a patent for a three-foot hopper—well, he would only want another examination to send him to Stockton.

Q. But suppose the hopper was three feet square would it require the exercise of any inventive faculty to make it twelve feet square?

48 A. It would not be for the same purpose. If it was but three feet square the hopper would be of no use. It would not work. It would never discharge a load of coal or receive one.

Q. Now, I say to you suppose some one had patented an invention in all respects like this, but his hopper had only been three feet square, would it have required any exercise of the inventive faculty to have increased the hopper from three feet square to twelve or fifteen feet square?

A. It would be about the same as to take a teaspoon and make a coal shovel out of it.

Q. In other words, if you had a teaspoon it would be very easy to increase its proportion and make a coal shovel?

A. Yes, sir.

Q. And if you had a hopper there three feet square it would require no inventive faculty to increase it to fifteen feet square?

A. No, sir. By raising the chute up it would not control the flow of the coal, and if the chute were not fastened so that it was movable, so that if it could be raised up it would not control the coal. Of course, as you let the chute down the coal would flow down.

Q. Would that be an equivalent of your gate?

A. I would consider it would be an infringement on my machine. I never did have anything to do with the coal-screening or coal-delivering apparatus until I invented this machine. I have known of letters patent which were issued in the Patent Office before this one of mine, but never before I invented this one. I don't know of any screens that were patented before mine that could be put on a wharf and take a swinging tub and discharge the coal into carts and handle it. I have heard of the Sparks machine. The Excelsior Coal Company owned it, but that invention did not operate practically.

49 Mr. McCUTCHEN: I wish to show by the witness that he has actually handled the Sparks machine and I wish to cross-examine him upon his declaration that there was not at the time he invented this device any portable mechanism by which the coal

could be received from the hold of a vessel and delivered to carts screened.

The COURT: This is not in cross-examination and I rule it out.

Exception No. 6.—(Exception noted by defendant.)

WITNESS: I think I did say in the case against the Oregon Improvement Company that I made three machines before I made any revenue for myself for it—not three models. I do say that the space in defendant's machine between the gate and the opening in the hopper is the equivalent to my reservoir O. My reservoir O, I think, would hold two tons of coal or two and a half tons. My reservoir does not hold more coal than the hopper. I say that the whole of it—the whole machine—will hold about eight tons and there would be two tons to it to run down here into the reservoir. The reservoir would certainly hold a ton and a half. In the reservoir the coal would be comparatively loose. I don't claim that the hopper is original; neither do I claim that the wheels that move it about are original. Coal screens were used long before my invention; yes. I don't claim the chute is original. I don't claim that the gate to my device is original, and I don't claim that the frame to the machine that it stands on is original.

Q. Well, now, will you state to the court and jury what your invention is—what there is new and useful?

A. Apart from the patent I can't tell. The invention is a coal screen and chute that can be put onto the wharf and hold eight tons of coal and hold a sufficient amount to deliver to carts that will carry away eight tons in less than eight minutes. My invention is a portable device which will hold eight tons of coal and which can be put on the wharf and which will discharge into carts. That is my invention described in the patent. I didn't know of any such device up to the date of my invention.

Q. Now, Captain, the letters patent which are offered here appear to have been a second reissue. There was issued to you another patent covering this invention or some portion of it, wasn't there?

This question was objected to on the ground that it was not cross-examination, but an attempt on the part of defendant's attorney to try his whole case on cross-examination. The court sustained the objection; to which defendants excepted.

The COURT: This is not a proper cross-examination; this is a part of your defense.

Exception No. 7.—Mr. ESTEE: Note an exception.

By Mr. MCCUTCHEN:

Q. Suppose that space above that gate in your machine was so small as only to hold one or two buckets of coal and regulate and control the flow of coal from the hopper, would it then be the equivalent of your gate *b*?

A. It would be too slow in its movement to satisfy the intention of the inventor.

Q. Then it would not be an equivalent of your gate?

A. As far as it went it would be an equivalent, but it would be

impractical as being so slow in its movements. It would not be practical, is what I say.

Q. That machine would contain all the elements of yours, but it would require a little different arrangement than yours. Do I understand you to say that if that gate were placed above, immediately at the opening of the hopper, it would be an equiva-
51 lent of your gate *h*, but might not perform the work quite as satisfactorily?

A. It would not do as a machine.

Q. Now, if you, in inventing your machine, had placed your gate immediately at the opening of the hopper and found it would not work satisfactorily, would it then require the exercise of inventive faculty to put it further down the chute?

A. Well, an Indian might not have done it, but I would have done it.

Q. It would not require any exercise of the inventive faculty, would it?

A. Well, I can't tell; it is very difficult to define what you mean; I don't know whether it is an intelligent thing to do.

Q. Given all of these elements, the hopper, the screen, and the gate, if a man had placed the gate at the opening of the hopper and had found that it would not control the flow of coal there, would it have required the exercise of inventive faculty to have put that further down on the screen?

A. Yes, sir; the same as when a man tried to jump over a log and couldn't he would go around it.

Q. And that is the only inventive faculty?

A. Yes, sir. I was plaintiff in the case against R. D. Chandler; the Excelsior Coal Company was not plaintiff; the Excelsior Coal Company never had a suit against Chandler; come to reflect, I think it was the Excelsior Coal Company in name, but I was the owner of it. Afterwards, Mr. Chandler and others combined with me on compromises. I found I could not fight the whole combination of coal interests, and I had to make a compromise of some shape, and I made a compromise with Mr. Chandler, who became a part of the Excelsior Coal Company. Those suits were so
52 near together that they slipped my attention. Yes, the suit was brought in the name of the Excelsior Coal Company against Chandler. This patent now in suit was then at issue in that case. At that time the Excelsior Coal Company held no other patents. I am not quite sure, we might have held the Sparks patent; I don't know; the papers will tell whether the Sparks patent was in issue in that case or not.

Q. Was the Sparks patent in litigation in that suit against Chandler?

A. I think we depended upon my own patent to be successful against Chandler.

Q. Now, you remember that there was a judgment rendered in that case, don't you?

A. I do.

Mr. McCUTCHEN: In connection with that we now desire to offer in evidence a certified copy of a decree made by the court in the case of The Excelsior Coal Company *v.* Chandler.

Mr. McCutchen here read to the jury the decree above referred to, which was introduced in evidence and marked Defendant's Exhibit A. The decree is in the words and figures following:

UNITED STATES OF AMERICA, } ss:
District of California, }

Circuit Court of the United States, Ninth Circuit.

THE EXCELSIOR COAL COMPANY, Complainant, }
vs. } In Equity.
R. D. CHANDLER, Respondent. }

This cause having been heard on the pleadings and proof, and the advocates of the respective parties having been heard
53 and due deliberation being had in the premises, it is now ordered, adjudged, and decreed that so much of said complainant's bill of complaint as charges an infringement of the letters patent issued to William Sparks on the sixteenth day of November, A. D. 1869, and so much of the same as charges an infringement of the letters patent issued to Martin R. Roberts on the 17th day of June, A. D. 1873, and the several reissues of the same, be, and the same is hereby, dismissed.

And it is further ordered, adjudged, and decreed that so much of said bill as charges an infringement of the letters patent granted to William Sparks on the twelfth day of September, A. D. 1865, be, and the same hereby is, sustained; and it is further ordered, adjudged, and decreed that said complainant do have and recover against said respondent the damages by it sustained in this behalf; and it is further ordered that said cause be, and the same hereby is, referred to S. C. Houghton, as special master, to ascertain and compute the said damages and to report the same to this court with all convenient speed.

(Signed) LORENZO SAWYER,
Circuit Judge.

Endorsed: Filed and entered January 2d, 1880. L. S. B. Sawyer, clerk.

I, L. S. B. Sawyer, clerk of the circuit court of the United States for the northern district of California, do hereby certify the foregoing to be a full, true, and correct copy of the interlocutory decree filed and entered January 2nd, 1880, in the cause entitled The Excelsior Coal Company *vs.* R. D. Chandler, No. 1844, in said circuit court.

[SEAL.] Attest my hand and the seal of said circuit court this 3rd day of April, A. D. 1891.

L. S. B. SAWYER, *Clerk.*
By F. D. MONCKTON,
Deputy Clerk.

54 WITNESS: I don't know exactly the time when the Sparks patent was purchased by us. I don't recollect. I think it was not purchased before the second reissue of my letters patent. The papers will show. I don't remember the date. I have an assignment of the Sparks patent to the Excelsior Coal Company. It is among the papers. I can ascertain the date when I go to my office. I will be prepared to give the information when the court meets this afternoon. I did make a trip to Washington Territory to the coal regions prior to my invention, and I visited two mines there, the Newcastle and Seattle. They were about one hundred and twenty-five miles apart. The Newcastle mine is away up in British Columbia, opposite a little town they call Nanaimo. It was on British territory. I went also to Bellingham bay and waited there just a few minutes. I think one of my ships was running to Bellingham bay at that time. I never visited Bellingham Bay coal mine. I just went on a steamboat and jumped ashore and saw the surroundings and left immediately. I didn't have nothing to do with the coal. I don't know who owned the mine. I think there was a structure or wharf that ships moored to; don't know that I paid any particular attention as to whether there was coal bunkers or coal hoppers there or not; don't think I saw any. My definition as to the difference between a hopper and a reservoir is this: A hopper may be big enough to make a reservoir. A reservoir is a place containing any commodity—whether coal or anything—and a hopper pertains to a shape, hopper shape. A hopper is not necessarily smaller than a reservoir. A hopper pertains more to a shape than a thing.

Q. Referring to the model of defendant's hopper which has been offered here by plaintiff, would you call the space above this middle gate or upper gate a hopper?

55 A. Not in the sense in which I understand the word to be generally used.

Q. Well, then, the word hopper could not be properly applied to the space above that gate?

A. Well, no, I should think not; yet there is some functions by letting coal down in the way that a hopper is generally designed.

Q. Would you call that, then, a hopper—that is (indicating), now that you are talking about?

A. No; that is not a hopper.

Q. Then this space referred to is not a hopper?

A. Not a hopper by itself.

Q. Is the portion of your machine which you designate as the reservoir O the hopper?

A. Well, no; not in the sense as I understand a hopper. It would be a misapplication, as far as I understand it, to call it a hopper. I would define the difference between a hopper and reservoir, that the hopper, in the terminology of it, is that where the sides are vertical, and it is generally applied in a mechanical use, a sifting down and bringing it to a point. I am not sufficient of an etymologist exactly to confine myself to it; in fact, I am very dull in terminologies. A hopper is a box. It hops and shakes. If you

take a box, it will simply settle down, but if you make the sides incline and put a hole in the bottom of it and naturally, when you shake it in this shape, it will tend to send what kind of commodities that are in this shape to a point, and then it assumes the character of what I call a hopper, and it is literally hopping. It is the shape that is referred to.

We use a gate at the lower end of my hopper simply to stop the coal from running down, just the same as a slide is put into the bottom of a hopper in a mill to stop it—that is, to stop it from moving out of the hopper.

56 Q. Your object in putting the gate there is to prevent the coal from running out of the hopper?

A. Yes, sir.

Q. Don't you then convert the hopper into a reservoir?

A. It is, in a sense, a reservoir, because it retains what is in there without passing it out of it.

Q. Now, keeping in view your definition of a reservoir—that is, something that contains an article or commodity and keeps it from passing out of it—isn't this upper receptacle the only reservoir in your machine as you actually use it?

A. No. These gates are not in controversy, as I understand it. (Question repeated.)

A. No; it is not. We put the gates here so that the carts could come and after it was screened take away the coal and that the coal would pass in a thin stream over the screen. The object of the gate is to check the coal and have it pass over the screen in a thin stream.

Q. Didn't you state to your own counsel that the gates were placed there for the purpose of stopping the flow of the coal, so it would pass over the screen in a thin stream?

A. Well, I don't know. It will certainly do this. If you make this orifice less it will pass over in smaller quantities; otherwise you might have made it larger.

Q. Now, sir, do you place those gates there and use them so that the coal will pass over the screen in a thin stream?

A. So as to control the amount of coal that passes; yes, sir.

Q. Didn't you state yesterday that they would not screen coal properly without those gates at the top?

A. No, sir; I didn't. These gates are very modern and I screened coal for years without them. It screens coal very well with-

57 out the gates. We have the gates there so as to—well, they perform several acts. These screens, gentlemen of the jury, you will understand they come up here near the top. If you dump the coal in here (in the hopper) it goes in in such a way that it busts the screen and does damage, and the gates are put there, so that if they are using coal we are now importing—hard masses of coal as large as a flour barrel—it will bust the screens all to pieces. It has a certain additional purpose, to make the wear and tear less. That is the thing that suggested the gates. The momentum of the swinging tub would throw the coal down into the hopper and bust everything out in the screen. These are some of the reasons for

having the gate at the bottom of the hopper. It may accomplish some other advantage, namely, shutting the gates down, and if a person came and wanted his coal not screened we could shut this up and put the metal blank in, and then, by taking the metal blank away, we could then get screened coal. The metal blank performs the office of letting the coal run out screened, and the object of the gate is to keep what is required by the cart in the reservoir. I think the reservoir will hold about two tons. The whole thing will hold about eight tons or maybe nine tons if it is heaped up. Then, the hopper will hold about six tons and the reservoir about two tons. Good active stevedores will charge thirty tons of coal an hour. We don't use those gates at the lower end of the hopper often, but when we do we use it for the purpose of determining whether a man wants screened or unscreened coal; but the gates perform two offices. That is one office and the other is to prevent the wear and tear. We used it for ten years, and that wear and tear went on all the time; it was simply monstrous. Some of the coal would go right
58 through the hopper and strike the screen. A barrel of flour would go in there and fetch up hard. There are different kinds of coal. This machine will screen coal without a gate at the lower end of the hopper. I used it ten years ago without them and it gave perfect satisfaction. I would like to make an explanation as to why the coal can be screened when not going in thin streams over the screen. I think I haven't given a correct explanation. I would like to explain it now. I think it is justice to myself that I do explain it. When this machine was invented the coal was imported here very small, with a great deal of dirt in it. Bye and bye there was discoveries of coal that was like so many chunks of granite—weighed very much—and this opening had to be made correspondingly large, in order to pass those massive lumps through. When it was increased to that size it had to have something to prevent that disposition, we will call it, for to break when it comes in contact with a screen. Your questions run to the manner of screening and my answers go to the safety of the screen, to correct the wear and tear. It is a discrepancy between a mechanical answer and the questions given in this way. Now, if I had small coal in a small orifice it will be all very well, it would do without the chance of going in and bursting the screen altogether, and if I have got to screen barrels of flour I have got to open it large enough and having some way of saving the destruction from such large masses falling so far and coming right here (indicating). That is an explanation of the modern idea of the gate and before that the other plan suited well for the dirt. This change in the coal increased continuously, as the trade desired larger lumps to ornament their stock as they put it into the yard, and when they got deeper into their mines and more giant powder was used they got out larger
59 lumps, and one of my troubles in using the screen is to have them not put too big pieces on them in that way. I have had them weigh as large as three hundred pounds in one single lump, but generally I make them break it up.

Re-examination of Captain M. R. ROBERTS:

As to the memoranda of dates which I agreed to produce, I will state that I have ordered my son to be here, and he ought to have been here at fifteen minutes past eleven, and I don't know why he is not here. My books will explain everything. I suppose he is perhaps getting the data in his head from the books. He will be here in a few minutes, I think. I examined the machine that I saw at the Black Diamond mine in Contra Costa county.

(By Mr. BOONE:)

Q. Could that machine have been used in place of one of your machines on the wharves at this city for unloading coal from ships?

Mr. MCCUTCHEN: We object to that as calling for a conclusion. Let him describe the machine that he saw over there and the jury will tell whether it could be used in place of his or not.

Exception No. 8.—(The court ruled the question competent; to which an exception was reserved by defendant.)

The WITNESS: The Black Diamond machine could not have been used in place of my machine, for the reason that it was a house, very long—I should think probably one hundred feet long—with railroad tracks running over it and the coal dropping into a hole. I am not able with my observation to say what was in that hole where it dropped into, but it was a great big house. It might
60 have had slanting sides—it might have had; but the object was to run a railroad over from the mine and drop the coal into this place, and from this place where I saw it there were screens running to different grades—sizes—and boys and men were placed to sort coal and send it along into the railroad cars or into the carts or anything they had to take it away with. The idea that I had of it was that it went into another receptacle and was there thrown off into the different sizes of coal. These places had various branches, and they would switch off one way and another the other way, and they work it into the different classes and they switched the coal from different places; but it wasn't at all even suggestive of such a thing as this of mine. I saw this when I was having the litigation against Flannigan and Mann. It was after the patent was issued. It must have been two or three years after the patent was issued. I know what character of machine Chandler was using in relation to which the suit of Excelsior Coal Company against R. D. Chandler was brought.

Q. How similar was it to the machine used by the defendant?

Mr. MCCUTCHEN: We object to that as immaterial, irrelevant, and incompetent.

Exception No. 9.—(The court overruled the objection and counsel for defendant duly excepted.)

The WITNESS: I can explain it better by the use of this model of defendant's. In shape the machine was declared to be an in-

fringer of the Roberts patent, and it was an infringement of a little machine that was a coal-yard thing for a man to carry a bag of coal up to screen in. It had none of these appliances in here (indicating), only a little shut-off from the box or hopper, and it had no gate of any kind below to con-
61 trol the delivery into the carts. The coal was passed down too fast for practical use, and it never went into practical use. It was a patent that had some practical elements about it. It had the screen and box or hopper or reservoir on top, or whatever you are a mind to call it, and nothing but simply a receptacle here (indicating), and a direct screen. It had never been designed for the purpose for which my patent was intended to supply. My patent is for the purpose of taking coal from the ships as they lay at the wharf and carry it into carts. This little patent was for receiving the tub and emptying it in, and it went into the carts if it ever could be used—a little box, three-foot box; but still it interfered some with the elements of the patent, and by the advice of my counsel—I think it was Estte & Boalt; I think they were at that time my counsel—they advised me to pay a moderate sum to get that machine out of the way of litigation so as to avoid patent judicial proceedings, and it never went into use. Nevertheless, I used and intended to bring my patent as an invention, but it had none of the elements. The Sparks patent had no lower part here to control it in going into the carts. Therefore that patent did correspond with an invention made by some people, the names I am not familiar with now. The patent of it is there. It simply had this idea of shutting off the hopper and letting it come down that way (indicating), and therefore the court decided that it hadn't the elements of my patent. It had no reservoir and it had no gate "*h*," and the court said it didn't infringe the Roberts patent, but it did infringe the Sparks patent. The verdict on the Roberts patent was rejected. The judgment was—I think it is on record there,
62 what it was in reference to the Sparks patent, because it infringed this other machine, which was Chandler's machine, but it was dissimilar entirely to the machine now before us, and what we rely upon is the patent—entirely dissimilar—another machine entirely. As to what I said yesterday as to royalty, I answered according to my understanding, and that was this: A royalty means to take my patent and use it and furnish your own machine and do all under it that you please. That is what I understand to be a tax levy upon a royalty or a right of use by government; that would be royalty. We have no such. What we do is to take a machine to the ship and place it there and put a man in charge of it and use the machine and charge him by the ton for what passes through it; that is the only system we have ever resorted to.

Q. Now, state just what you have done.

A. We have been screening for many years and we received fifteen cents a ton, and then it came down to twelve and a half cents a ton, and now it is fixed and used and satisfactory to everybody at ten cents a ton.

Q. What does that include?

A. It includes a machine put on the ship and a man to attend it.

Q. Who owns the machine?

A. The Excelsior Coal Company, except the infringements.

Q. Then the Excelsior Coal Company simply takes this machine and places it on the wharf and furnishes a man to operate it and charges ten cents a ton?

A. Yes, sir; we usually pay two dollars and a half a day for the man.

Q. How many tons of coal will pass through one of your machines in a day? What do you consider an average day's work?

63 Mr. McCUTCHEN: We object to that upon the ground that it is not responsive to any issue here what an average day's work is.

The COURT: I will admit the testimony.

Exception No. 10.—Mr. McCUTCHEN: We will reserve an exception.

The WITNESS: It has discharged as much as three hundred and forty tons a day, but a fair good day's work would be for ships about two hundred tons a day when all things are working right. That would be a fair average of a day's work through one of these machines. It makes very little difference whether the coal is being screened or merely running through the chute. It perhaps wouldn't make any difference. If there would be a difference it would be in favor of larger work when it is not screening, but it would be so imperceptible—the difference—that it wouldn't be hardly worth mentioning. Either way will keep the ship running.

Examination-in chief of P. B. CORNWALL, a witness called on behalf of plaintiff.

(By Mr. BOONE:)

Q. What is your relation to the defendant in this case?

A. The defendant is the Black Diamond Coal Mining Company. I am president of the company. I cannot tell how long. I have been manager of the company since 1866, and I think I was elected president in 1870. I know the machines that the defendant uses for unloading coal from ships. I cannot tell the exact date when they were constructed. I can't tell you that without refer-

64 ring to my books. Captain Roberts first put his machines in use in this city on the city front probably twenty years ago. I think it is now about six years since the machines we used were built. I did not anticipate being called as a witness until the plaintiff got through, but I have all the data in my office and later on I will refer to them, where I have all the dates, and state them to you. To the best of my recollection it was six years ago when we first built one of the machines we use. They were built by my orders by a contractor, boss carpenter, on the city front. His name I don't at this time recollect. I think I gave him the orders, the general

orders—the general directions. There were two of them engaged in it, and I think one of them—is it proper for me to make an explanation, your honor?

The COURT: Yes; certainly.

A. I gave him the order in this way: I told him to go to the Black Diamond mine and measure and examine the chutes and screens and bunkers that were in sections there and reproduce one of them in a portable shape, small enough to be put upon the dock and in the same proportions. The Black Diamond Coal Company has two of these in use.

Q. Has any change been made in their construction since they were first built?

A. In one of them there has. In the other there has not. One of them was built originally with a screen in imitation of the screens at the mine, but after this suit was commenced or about that time—I don't remember the exact date—the screen part of it was dispensed with and it was planked up so as not to use a screen any more. I ordered the screen to be removed and the planks to be put in, because a suit had been commenced, and while I felt great confidence, yet I felt if there was to be a judgment rendered I would not enlarge the damages, and from that time on I again used Cap-
65 tain Roberts' screen for any coal that I screened. I don't remember the exact time after the first machine was built before the second was built. It may have been not more than three months, or it may have been a year and a half or two years. I am not sure about it. However, I will look up the date and later on give you a specific answer. Our books will show, but I don't remember now. These machines have been frequently used, and generally when we have had ships discharging coal at our own wharf. We have not moved them around to different parts of the city, except when we moved our office from one part of the city to another, and once we moved them from one wharf to another, but generally when we have had ships unloading these machines have been used. I have often seen Captain Roberts's machine used and know how it operated.

Cross-examination.

(By Mr. MCCUTCHEN:)

Q. You say you gave this boss carpenter instructions to go to the Black Diamond mine and reproduce the machine that you had there in a portable shape. You had seen the machine that was there at the time, had you?

A. At the mine?

Q. Yes.

A. Yes, sir; we had several; a great many screens. I don't know that it is proper for me to say—well, I had seen the machine there; yes.

Q. Just describe the machines which you had there and which you told this man to reproduce in a portable shape, and, in this

connection, I will ask you how long those machines had been at the Black Diamond mine which you wanted reproduced.

Mr. MILLER: We object to that as irrelevant, incompetent, and not cross-examination.

The COURT: I will sustain the objection.

66 Exception No. 11.—Mr. ESTEE: We note an exception.

Examination-in-chief of MARTIN R. ROBERTS, JR., on behalf of plaintiff:

The WITNESS: Am the son of Martin R. Roberts, who has just been on the stand on the part of plaintiff. I am officiating in the capacity of a sort of agent for the Excelsior Coal Company; have occupied such a position ever since its inauguration or incorporation. I haven't the date in my mind when the Excelsior Coal Company was incorporated. I know the machines which are used by the defendant in this case for screening and loading coal in carts. By a record kept at the time as agent of the company to do so I get the dates as to the time when they commenced using these machines. The superintendent instructed me to do this. Pursuant to those instructions I have been accustomed to keep a record of all the work done by all the screens owned by the company, and by orders I do the same in regard to all screens, whether owned by the company or by the defendant. I kept a record of the work done by the defendant. The defendant owns two machines. This memorandum here is a transcript which is made from this book I have here. This memorandum represents a correct copy of the record which I have. This memorandum shows the time when the work was done. This book contains a record of the work done by the hoppers of Excelsior Coal Company. I kept the book myself. I personally made the memorandum which I present here. These papers are a true transcript from the book kept by me, which shows all the work done by the Black Diamond Coal Company, and I have compiled that work so done by them on these two sheets. This mem-

67 orandum is correct as far as I am competent to make them.

Mr. MCCUTCHEN: I would like to cross-examine the witness on that subject to show if the memoranda kept by him are competent.

Q. When did you begin keeping this book, Mr. Roberts?

A. It shows for itself.

Q. In 1884?

A. Yes, sir; that particular book, but I have got another one, but that is away back.

Q. And you have kept it from that time up to the present?

A. Yes, sir.

Q. Have you been in the State of California all the time?

A. Yes, sir; don't think I have been out of town for any length of time since 1884; don't recollect any trip to the country where I was gone some two or three days. I go to the various places where ships are discharging and take a memorandum of it myself, and

then make an entry in the book; have not received information from any third party. If I had I would recall it. I made the first entry in this book.

(It is admitted by counsel for the respective parties herein that the title to the patent in suit is in the plaintiff and was so at all the times charged in the complaint.)

Captain M. R. ROBERTS recalled for further cross-examination.

(By Mr. MCCUTCHEN:)

Q. Captain Roberts, in your redirect examination the other day you testified in relation to the Sparks patent and explained that patent to the jury, and your cross-examination was suspended because the patent could not be found. I will ask you if that is a correct representation of the Sparks patent (handing a paper to witness).

68 —. This is the patent I referred to—the first patent of Mr. Sparks. This is a copy of the patent that I was referring to as the Sparks patent.

Mr. MCCUTCHEN: We offer this in evidence, if the court please.

Mr. MILLER: We object to that, your honor.

The COURT: I think that it should be offered as a part of the defendant's case. I do not think it is proper cross-examination. It seems to me that it is going beyond the province of legitimate cross-examination.

Exception No. 12.—Mr. ESTEE: We will note an exception.

The WITNESS: I wish to correct my testimony as to the time I built the first machine. It was in 1873 and not 1874.

Examination-in-chief of GEORGE W. HEFFINGER, a witness called on behalf of plaintiff:

The WITNESS: Am a draughtsman; am employed at 258 Market street, at W. H. Smythe's; been engaged in the business seven years; been engaged in mechanical draughting, draughting machinery, drawing up patents, and so forth.

Q. Can you state what these drawings represent (handing drawings to witness)?

A. They represent a coal screen. I made them about two weeks ago from a full-sized machine. The machine was located at the Black Diamond Coal Company's wharf, at the foot of Main street. I prepared the sketches from which these drawings were made personally. The drawings are correct. There are two of those machines there.

Mr. BOONE: We offer these drawings in evidence, if the court please. (Marked "Plaintiff's Exhibit 6.")

(Here follows drawing marked p. 69.)

70 Examined by Mr. McCUTCHEN, on behalf of defendant:

Q. You say that this is a model of a coal screen that you saw?

A. I understood it was; yes.

Q. Did you see any screen there?

A. No, sir; there was no screen there. It was simply made from the structure that I saw there. It was a simple structure to what the drawing shows. There was no screen there.

(By Mr. BOONE:)

Q. Was that machine in operation when you were down there?

A. Yes, sir. I saw the machine in operation there. The coal was lifted from the vessel to the hopper, at the top of the machine, and from there it was let down into a central chute by gravity. From that central chute it was extracted by a person at the bottom, on the ground, by a mechanism, which you see here, which consisted of a lever, a long wooden lever, extending out from the machine, having a handle to it. In this case it was a rod passing from the handle and it was distributed from the center of the machine just below the center of the hopper, and that enabled the operator to raise and lower the spout at the face of this feed-chute, and the coal was allowed thereby to either drop from that or not. That is the best explanation I can give of it. I was there probably three-quarters of an hour or an hour. The only difference I saw in the two machines in use there was that one of them had a chute retreating from the chute above—that is, receding back into the machine again. The idea was to let the coal pass down into the central part of the machine. Yes, sir; it was a chute. From my own knowledge I say it was a chute. When I saw it it was evidently a chute and nothing else. The bottom was the same as the top

71 one—continuous the whole length. The direction of the main chute ran opposite. The lower end was attached to the front of the machine. It terminated about three or four feet from the ground, in the center of the machine. It ended right in front of the timber forming the frame. I examined the bottom of that chute carefully. It commenced from the termination of the upper chute. It commenced from here and ran down to here (indicating on the drawing). The lower end was about three feet or so—three and a half feet—from the wharf. This was a secondary chute. It was not in use when I was there.

No cross-examination.

Examination-in-chief of P. B. CORNWALL resumed on behalf of plaintiff:

The WITNESS: I can now tell very nearly from memoranda I have in my pocket when our machines were made. The only screen we have had in use was made in 1885, and, I suppose, very late in the year. I don't know the exact date, but we screened in 1885 one thousand tons of coal through our screen—through the screen that the company made. We built the first one in 1885, the only one we built that had a screen in it. We built a hopper afterwards without a screen. That was built either in 1885 or 1886. I

don't remember the exact date, but I will furnish you with the exact dates of each of them this afternoon.

Q. Have you produced the memoranda of the number of tons of coal unloaded from each of the vessels mentioned and referred to in the two exhibits, "4" and "5"?

A. I have a book-keeper's memorandum, but the book-keeper himself has been subpœnaed and has been instructed that he would be notified when you wanted him, and he is more competent to
72 testify upon that subject than I am. My book-keeper is not here, but he can come any time when you send for him. He is very busy, but will come at any time when he thinks you want him. John Petty, the book-keeper of the Black Diamond Coal Company, the head book-keeper, made up this memorandum. I haven't had possession of Exhibits "4" and "5" since last Saturday. I will take these exhibits, however, and have the book-keeper note opposite each one of the entries the number of tons of coal unloaded. You may rely upon that memorandum that I have brought here; it is entirely correct; there is no doubt about it. If the court will permit me, I will make a statement that will be of service to the attorneys and show how fallacious that statement is. Our ships come in here with two kinds of coal very frequently, and during this period have very often come with two kinds of coal, perhaps a cargo of twenty-five hundred tons in some instances, and there will be about one hundred tons of what is called house coal in the between-decks of the ship, separate, and the remainder of the between decks will be filled up with steam coal, and the hold, and it is only the house coal that is screened, and the house coal is discharged there at the wharf and the steam coal is taken up to Port Costa or the Selby smelting works or somewhere else, and is discharged, and we don't handle it at all.

Mr. Boone: All we want is the coal that is unloaded from these vessels through these machines.

The Witness: That is exactly what you have got there in that other statement. I will give the further memoranda to you, and I will testify clearly from that memorandum there about it.

(It is admitted that both plaintiff and defendant are corpo-
73 rations, and title in like manner is admitted.)

(Plaintiff rests.)

Mr. McCutchen: We propose to pursue at this time what we suppose to be the proper practice, and in accordance with that we will now ask the court to instruct the jury to bring in a verdict for the defendant.

Exception No. 13.—(The court overruled the motion; to which ruling counsel for defendant duly excepted.)

Mr. McCutchen: We will now offer in evidence, if your honor please, letters patent of the United States No. 140,077, dated June 17, 1873, issued to Martin R. Roberts, of San Francisco, California, for an improvement in coal screens and chutes.

(No objections. Introduced and read to the jury and marked "Defendant's Exhibit B.")

75 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,977, dated June 17, 1873; application filed April 26, 1873.

To all whom it may concern:

Be it known that I, Martin Rickard Roberts, of San Francisco city and county, State of California, have invented a combined portable hopper, chute, and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to a portable apparatus which is intended more particularly for receiving, cleaning, and delivering into carts coal and other like substances, which are usually dumped upon the wharf in discharging ships.

The usual method of discharging ships of their cargo of coal is to raise the coal from the vessel in tubs by a steam hoisting apparatus, and dump it in a pile upon the wharf, from which it is removed by carts to the different coal-yards, where it is screened so as to separate the finer portion or screenings from the large and marketable or more merchantable portion.

My invention consists of a portable apparatus having a double hopper, chute, and screens, so arranged that by dumping the coal or other substances to be handled from the tub into the upper hopper, the fine portions or small particles will be separated in two or more grades from the coarser portions, and be deposited in separate piles, while the coarser pieces are caught in the second hopper, from which they can be conveyed through a chute into the carts which convey them to the coal-yards, thus requiring but one operation to discharge the cargo, screen the coal, and load it into the carts.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawings forming a part of this specification, in which—

(Here follows diagram marked p. 74.)

Figure I is a perspective view of my invention. Fig. II is a plan view of the blank to be used when the apparatus is used only as a chute.

A A represent a strong frame, which is properly staved and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame, I secure two boards, B B', at an obtuse angle to each other in the form of a trough, but leave their lower ends separated so as to provide a space, C, between

M. R. ROBERTS.

Coal-Screens and Chutes.

No. 140,077. Patented June 17, 1873.

Fig. I.

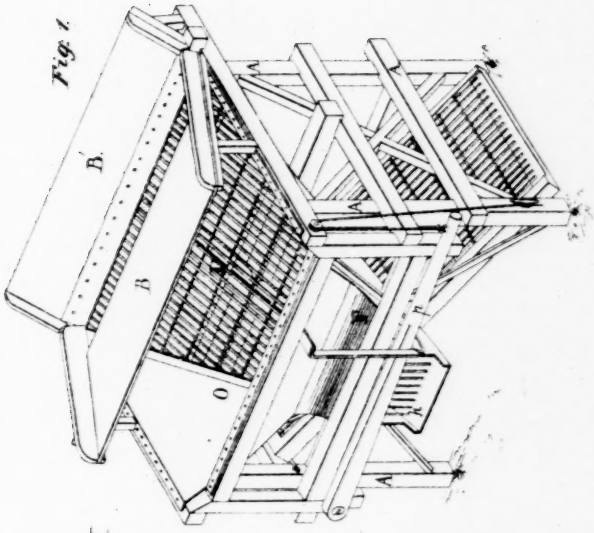
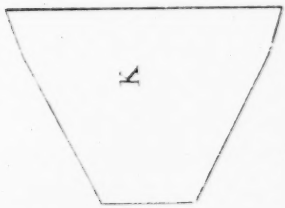


Fig. II.



No. 200.
B.D. Coal Mining Company
v.
Excelsior Coal Co.
D. 74

Witnesses.
R. H. Whittlesey
L. D. Evans

Inventor.
Martin R. Roberts
by A. H. & R. K. Cox
his Attys.

them for the purpose hereinafter described. These boards form what I call the upper hopper. The board B' forms an extension to one side, D, of a large hopper, O, which is located in the body of the frame below the upper hopper. This side D of the large hopper slopes toward the opposite side of the frame, and is constructed of parallel wires secured at short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the upper to the lower hopper, and through which the small particles, up to a certain size, will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The lower hopper is contracted toward its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and hopper until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen, and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions, which pass through the screen, will fall upon the floor or wharf directly under the frame.

Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned, and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships; but when moving it from one wharf to another, I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any wheeled vehicle.

The upper trough, which is formed by the boards B B', is as long as the machine, so that in dumping the load, any vibration or swing of the tub while it is being emptied will not cause the load to be discharged outside of the hopper as long as the machine is properly located, and ordinary care is exercised in dumping it. This form of the upper hopper also allows the substance which is dumped into it to spread over a larger surface and thus be more thoroughly screened than when the hopper is smaller.

When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank, K, is placed upon the grating or inclined side D of the larger hopper, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely

across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal pile.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. The receiving-hopper B B', in combination with the hopper O, with its screen or grating sides D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described.

2. The metal blank or false bottom K, in combination with the receiving-hopper B B', hopper O, chute F, and gate *h*, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

M. R. ROBERTS. [L. S.]

Witnesses:

GEO. H. STRONG.

HENRY K. MOORE.

76 Mr. ESTEE: If your honor please, to assist my associate we now offer in evidence reissue letters patent No. 6211, being reissue letters patent of patent No. 140,977, date January 5, 1875, application filed August 4, 1873, issued to Martin R. Roberts, of San Francisco, California.

(The above patent was stated by counsel for defendant to be the first reissue of the original letters patent, and that the second reissue is the one sued on herein. This patent was duly read to the jury and introduced in evidence and marked "Defendant's Exhibit C.")

M. R. ROBERTS.

Coal Screens and Chutes.

No. 6,211. Reissued Jan. 5. 1875.

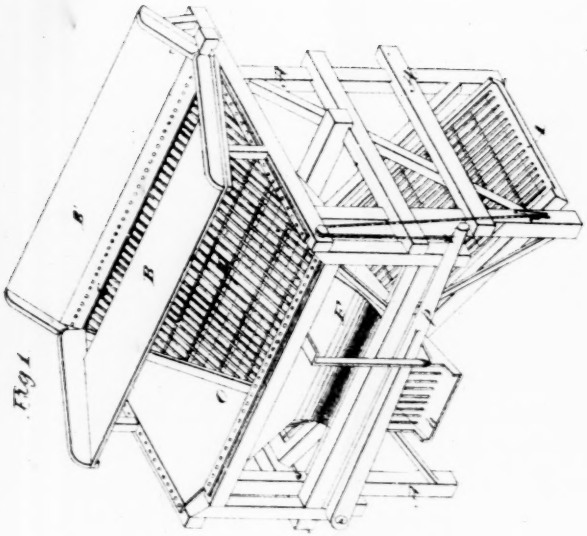


Fig. 1

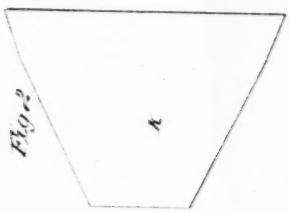


Fig. 2

No 206
R.D. Coal Mining Co
Excelsior Coal Co
P.77

Attest:
R. H. Whittlesey
L. L. Evans

Inventor:
Martin R. Roberts
by Wright & Coffin
his Attys

78 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,077, dated June 17, 1873; reissue No. 6211, dated January 5, 1875; application filed August 4, 1873.

To all whom it may concern:

Be it known that I, MARTIN R. ROBERTS, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful improvements in a combined portable hopper, chute, and screening apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

In the apparatus at present used for unloading ships the coal is hoisted in a tub, by ropes and tackle, high enough above the decks to pass clear of the bulwarks in swinging out over the wharf, and is poured from the elevated tub, and falls a distance of from ten to thirty feet upon the wharf, or upon the pile of coal already dumped thereon.

In this operation the coal is damaged by being broken in falling from the tub, and in breaking the already dumped coal on which it falls.

The coarse coal and screenings or fine coal are all in the dump together, unassorted, and have to be shoveled from the wharf into vehicles for removal to the coal-yards, where it has to be again shoveled over one or more times in screening. Each time the coal is thus handled its cost is increased by the expense of the labor required to do the handling, and at the same time the coal is injured by being to a greater or less extent, broken and pulverized.

The object of my invention is to save expense in the unloading of coal from water-craft, and in screening and in reloading the same into vehicles for further transportation: to accomplish these results with greater dispatch and convenience than is now done, and to prevent as far as possible the breaking and pulverizing of the coal in unloading, reloading, and screening it.

My invention consists of a portable frame-work, supporting a hopper, reservoir, chute, and screening apparatus, especially adapted to the accomplishment of the object above stated.

In order to more fully illustrate and explain my invention, reference is had to the accompanying drawing, forming a part of this specification, in which—

(Here follows diagram marked p. 77.)

A A represent a strong frame, which is properly stayed and braced, so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards, B B', at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated, so as to provide a space, C, between them, for the purpose hereinafter described. These boards form what I call the hopper. The board B' forms an extension to one side, D, of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes toward the opposite side of the frame, and is constructed of parallel wires secured at short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir, and through which the small particles, up to a certain size, will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted toward its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *b*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen, and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned, and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf, in order to be placed in position to receive the discharging cargo of different ships; but when moving it from one wharf to another, I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any wheeled vehicle.

The hopper B B' is as long as the machine, and is made wide, so that when ordinary care is used in dumping, it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine, and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall, and is thereby prevented from being broken and pulverized. The outlet of the hopper B B' extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D, and has to pass its entire length, thus insuring a thorough screening of the

coal. The construction and location of this hopper B B′ make it a success in receiving the contents of a tub swung from a yard-arm, a result which I believe was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position and making it large, several advantages are obtained. Among others, a large screening surface is obtained; the gate *h* is sufficiently high from the wharf to allow vehicles to be driven under it and receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf; and the reservoir O is large enough to serve as a store-room, so that in case of temporary delay in the vehicles carrying the coal to the yards, the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal-pile.

Having described my invention, what I claim, and desire to secure by letters patent, is—

1. The receiving-hopper B B′, in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

2. The metal blank or false bottom K, in combination with the receiving-hopper B B′, reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

3. The combination of the hopper B B′, for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth.

4. In combination with the elongated hopper, the screen D, reser-

voir O, and chute F, with its gate *h*, the combination being substantially such as is herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of July, 1873.

MARTIN RICHARD ROBERTS. [L. S.]

Witnesses:
P. O. WEGENER.
JOHN L. BOONE.

79 (Mr. Estee, counsel for defendant, now offered in evidence file-wrapper and contents in the matter of the reissue letters patent No. 6211, dated January 5, 1875, for improvement in coal screens and chutes.)

(It was agreed that said file-wrapper and contents be considered as read, was introduced in evidence, and marked "Defendant's Exhibit D.")

(NOTE.—The interlineations, corrections, crossings out, and marginal references in red ink and pencil in the following exhibit, forming part of the bill of exceptions, conform exactly to such interlineations, etc., as they appear in the original bill of exceptions.)

80 U. S. Circuit Court, N. Dist. of Cal.

EXCELSIOR COAL CO. *vs.* OREGON IMPROVEMENT CO. } No. 10248.

RESPONDENT'S EXHIBIT ROBERTS REISSUE No. 6211. S. C. H., Examiner.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the reissue letters patent granted Martin R. Roberts January 5, 1875, number 6211, for improvement in coal screens and chutes.

In testimony whereof I, C. E. Mitchell, Commissioner of [SEAL.] Patents, have caused the seal of the Patent Office to be affixed this 4th day of April, in the year of our Lord one thousand eight hundred and eighty-nine, and of *our* Independence of the United States the one hundred and thirteenth.

C. E. MITCHELL,
Commissioner.

81 *Petition for Reissue.*

To the Commissioner of Patents:

Your petitioner, *of* Martin R. Roberts, prays that he may be allowed to surrender the letters patent for improved coal screen and chute which was granted on the 17th day of June, 1873, whereof he is now sole owner, and that letters patent may be reissued to him

for the same invention upon the annexed amended specification. Accompanying this petition is an abstract of title duly certified, as required in such cases. And further pray that you will recognize Dewey & Co., of San Francisco, Cal., and A. H. and R. K. Evans, of Washington, D. C., as my attorneys, with full power of substitution and revocation to prosecute this application, to make alterations and amendments therein, to receive the patent, and to transact all business in the Patent Office connected therewith.

Applicant's signature, MARTIN RICHARD ROBERTS.

82 *Specification.*

Be it known that Martin R. Roberts, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful improvements in a combined portable hopper, chute, & screen apparatus, and I do hereby declare that the following is a full, clear, and exact description thereof that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

Specification.

In the apparatus at present used for unloading ships the coal is hoisted in a tub by ropes and tackle high enough above the decks to pass clear of the bulwarks in swinging out over the wharf and is poured from the elevated tub and falls a distance of from ten to thirty feet upon the wharf or upon the pile of coal already dumped thereon.

In this operation the coal is damaged by being broken in falling from the tub and in breaking the already dumped coal on which it falls.

This course coal and screenings or fine coal are all in the dump together, unassorted, and have to — shoveled from the wharf into vehicles for removal to the coal yards, where it has to be again shoveled over one or more times in screening. Each time the coal is thus handled its cost is increased by the expense of the labor required to do the handling, and at the same time the coal is

83 injured by being to a greater or less extent broken and pulverized.

The object of my invention is to save expense in the unloading of coal from water craft and in screening and in reloading the same into vehicles for further transportation.

To accomplish these results with greater dispatch and convenience than is now done and to prevent as far as possible the breaking and pulverizing of the coal in unloading, reloading, and screening it.

frame work supporting hopper, reservoir,*

1 †
Nov. 25, '74.* My invention consists of a portable (hopper,) chute, and screening apparatus especially adapted to the accomplishment of the object above stated.

[* In red ink in copy.]
[† In pencil in copy.]

In order to more fully illustrate and explain my invention reference is had to the accompanying drawing forming a part of this specification, in which—

Fig. 1.

A A represents a strong frame which is properly stayed and braced so as to withstand the concussions to which it will be subjected.

At one side of the top of this frame I secure two boards B B at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described.

These boards form what I call the hopper.

The board B′ forms an extension to one side D of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes towards the opposite side of the frame and is constructed of parallel wires secured at
84 short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir and through which the small particles, up to a certain size, will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The (lower hopper) is contracted towards its lower end, and chute F extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order
85 to be placed in position to receive the discharging cargo of different ships, but when moving it from — wharf to another I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any wheel vehicle.

The hopper B B′ is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub.

This hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall and is thereby prevented from being broken and pulverized.

The outlet of the hopper B B′ extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D and has to pass its entire length, thus ensuring a thorough screening of the coal.

The construction and location of this hopper B B′ makes it a success in receiving the contents of a tub swung from a yard-arm, a result which, I believe, was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position and making it large several advantages are obtained. Among others, a large screening surface is obtained, the gate *h* is sufficiently high from the wharf to allow vehicles to be drawn under it and receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf, and the reservoir O is large enough
86 to serve as a store-room, so that in case of temporary delay in the vehicles carrying the coal to the yards the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away. The gate or cut-off which I use consists of a lever bar, *j*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute.

Metal teeth *h* extend downward across the mouth of the chute so as to bar the entrance. When the cart is in position beneath the chute the free end of the lever is raised, so as to clear the teeth from the mouth of the chute and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention I believe its introduction will make it profitable to ship other substances, such as cobblestones, gravel, &c., and assort them while unloading the ship.

Cancelled Nov. 25, '75.*
Claim out.†

I claim the use of my invention in unloading ships or vessels for all substances to which it may be applicable.

By this arrangement coal can be discharged from ships, screened, and loaded into carts, not only at a great saving of expense in handling it, but with less wastage, as the large and more
87 marketable pieces or lumps will not be broken when dumped in this machine, as they always are, to a greater or less ex-

[* In red ink in copy.]
[† In pencil in copy.]

tent, when dumped from the height of twenty or thirty feet upon the wharf or coal pile.

Having thus described my invention, — I claim and desire to secure by letters patent is—

First. The receiving hopper B B', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described.

Second. The metal blank or false bottom K, in combination with the receiving hopper B B', reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

Substitute "A," Nov. 10, '74.*

Third. The receiving hopper B B', in combination with the hopper O, having the screen D, chute F, either with or without the gate *h*, constructed and arranged substantially as and for the purpose herein set forth.

Fourth. The elevated hopper B B', in combination with any suitable chute or screening apparatus when used for dumping into it coal from a swinging tub in unloading water craft, substantially as and for the purposes herein specified.

Substitute "B," June 29, '74.*

Fifth. A portable combined hopper, screen, and chute apparatus composed of the parts and constructed and arranged substantially as and for the purposes herein set forth.

In witness whereof I hereunto set my hand and seal.

—— ——.

Witnesses:

—— ——.

—— ——.

88 In testimony that — claim the foregoing — have hereunto set — hand and seal this 24th day of July, 1873.

Inventor, MARTIN RICHMOND ROBERTS. [L. S.]

Two witnesses:

F. O. WEGENER.

JOHN L. BOONE.

Oath.

CITY AND COUNTY OF SAN FRANCISCO, } ss:
State of California, }

Martin R. Roberts, the above-named petitioner, being duly sworn, depose- and say- that he verily believes that by reason of an insuf-

[*In red ink in copy.]

[Matter enclosed between rules erased with red ink in copy.]

ficient or defective specification his aforesaid letters are inoperative or invalid; that the said error has arisen from inadvertence, accident, or mistake and without any fraudulent or deceptive intention to the best of his knowledge and belief; that he is the sole owner of said letters patent, and that he verily believes himself to be the first and original inventor of the improvement set forth and claimed in this amended specification.

Sworn to and subscribed before me this twenty-fourth day of July, A. D. 1873.

F. O. WEGEMER,
[L. S.] *Notary Public.*

89 Endorsed: In the U. S. Patent Office. In the matter of the application of Martin R. Roberts for the reissue of letters patent No. 140,077. U. S. Patent Office, Aug. 4, 1873. Petition, oath, specification, and power of attorney. A. H. & R. K. Evans, att'ys.

90 No. 140,077.

THE UNITED STATES OF AMERICA.

To all to whom these presents shall come:

Whereas Martin R. Roberts, of San Francisco, California, has presented to the Commissioner of Patents a petition praying for the grant of letters patent for an alleged new and useful improvement in coal screens and chutes, a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such cases made and provided; and

Whereas, upon due examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are to grant unto the said Martin R. Roberts, his heirs or assigns, for the term of seventeen years from the seventeenth day of June, one thousand eight hundred and seventy-three, the exclusive right to make, use, and vend the said invention throughout the United States and the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this seventeenth day of June, in the year of our Lord one thousand eight hundred and seventy-three, and of the Independence of the United States of America the ninety-seventh.

[SEAL.] W. H. SMITH,
Acting Secretary of the Interior.

Countersigned:
M. D. LEGGETT,
Commissioner of Patents.

92 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,077, dated June 17, 1873; application filed April 26, 1873.

To all whom it may concern:

Be it known that I, Martin Richard Roberts, of San Francisco city and county, State of California, have invented a combined portable hopper, chute, and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvement without further invention or experiment.

My invention relates to a portable apparatus which is intended more particularly for receiving, cleaning, and delivering into carts coal and other like substances which are usually dumped upon the wharf in discharging ships.

The usual method of discharging ships of their cargo of coal is to raise the coal from the vessel in tubs by a steam-hoisting apparatus and dump it in a pile upon the wharf, from which it is removed by carts to the different coal yards, where it is screened so as to separate the finer portion or screenings from the large and marketable or more merchantable portion.

My invention consists of a portable apparatus having a double hopper, chute, and screen so arranged that by dumping the coal or other substances to be handled from the tub into the upper
93 hopper the fine portions or small particles will be separated in two or more grades from the coarser portions and be deposited in separate piles, while the coarser pieces are caught in the second hopper, from which they can be conveyed through a chute into the carts which convey them to the coal yards, thus requiring but one operation to discharge the cargo, screen the coal, and load it into the carts.

In order to more fully illustrate and explain my invention reference is had to the accompanying drawings, forming a part of this specification, in which—

(Here follows diagram marked p. 91.)

Figure I is a perspective view of my invention. Fig. II is a plan view of the blank to be used when the apparatus is used only as a chute.

A A represent a strong frame, which is properly stayed and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards B B' at an obtuse angle to each other, in the form of a trough, but

M. R. ROBERTS.

Coal-Screens and Chutes.

No. 140,077 Patented June 17, 1873

Fig. I

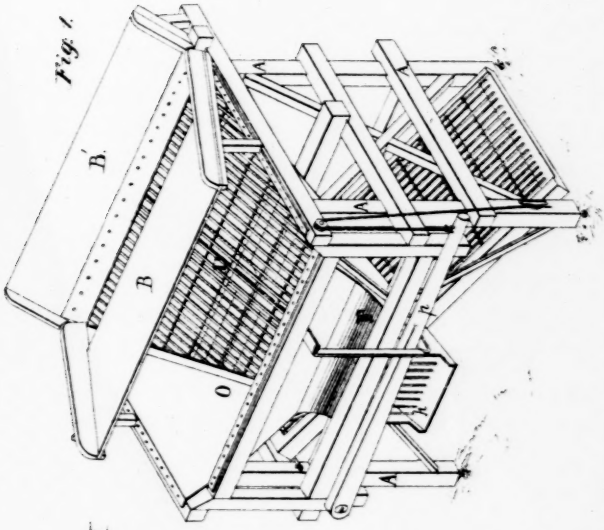
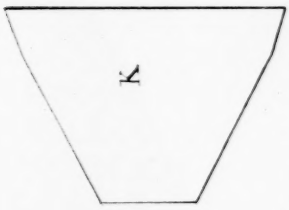


Fig. II



No 200
P.D. Coal Mining Co.
vs
Excelsior Coal Co
p. 91

Witnesses
R. H. Whittlesey
E. A. Evans

Inventor:
Martin R. Roberts
by A. H. & R. K. Ewin
his Attys.

leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described. These boards form what I call the upper hopper. The board B′ forms an extension to one side D of a large hopper, O, which is located in the body of the frame below the upper hopper. This side D of the large hopper slopes toward the opposite side of the frame and is constructed of parallel wires secured at short distances apart so as to form a screen, over which the coal or other substance must pass in descending from the upper to the lower hopper and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second
94 or large hopper. The lower hopper is contracted toward its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and hopper until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent gate or screen, I, of finer mesh than the grate D is secured in an inclined position in the frame A A, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions, which pass through the screen, will fall upon the floor or wharf directly under the frame.

Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships, but when moving it from one wharf to another I employ axels across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any wheeled vehicle.

95 The upper trough, which is formed by the boards B B′, is as long as the machine, so that in dumping the load any vibration or swinging of the tub while it is being emptied will not cause the load to be discharged outside of the hopper as long as the machine is properly located and ordinary care is exercised in dumping it. This form of the upper hopper also allows the substance which is dumped into it to spread over a large surface, and thus be more thoroughly screened than when the hopper is smaller.

When it is not desired to screen the article or substance to be unloaded a false bottom or metal blank, K, is placed upon the grating or inclined side D of the larger hopper, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute the free end of the lever is raised so as to clear the teeth from the mouth of the chute and allow the substance to pass through by its gravity into the cart.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when
96 dumped from the height of twenty or thirty feet upon the wharf or coal pile.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. The receiving hopper B B', in combination with the hopper O, with the screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described.

2. The metal blank or false bottom K, in combination with the hopper O, chute F, and gate *h*, substantially as and for the purpose above described.

In witness whereof I hereunto set my hand and seal.

M. R. ROBERTS. [L. S.]

Witnesses:
GEO. H. STRONG.
HENRY K. MOORE.

Endorsed: $\frac{6}{141}$. U. S. Patent Office, Aug. 4, 1873.

97 The United States Patent Office.

To all persons to whom these presents shall come, Greeting:

This is to certify that careful search has been made of the digest of this office and no assignment, agreement, license, power of attorney, or other instrument of writing is found of record letters patent under or relating to letters patent granted Martin R. Roberts, No. 140,077, dated June 17, 1873, for "coal screen and chute."

In testimony whereof I, M. D. Leggett, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this fourth day of August, in the year of our Lord one thousand eight hundred and seventy-three, and of the Independence of the United States the ninety-eighth.

[SEAL.] M. D. LEGGETT,
Commissioner.

Endorsed: $\frac{6}{141}$. U. S. Patent Office, Aug. 5, 1873.

98 B. W. P. (No. 1.) Reissue.

Examiner's room No. 103.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *Aug. 21st*, 1873.

Martin R. Roberts, care A. H. & R. K. Evans, present:

Relative to your application for reissue of letters patent No. 140,977, June 17th, 1873, filed Aug. 4, '73:

This application has been re-examined. The letters C and I, referring to the opening in the upper hopper and the supplementary screens respectively, do not appear in the drawing.

The 3rd claim is answered by the patent of P. Ceredo, Nov. 27, 1866.

The 4th claim is met in the patent of Wm. Sparks, Nov. 16, 1869.

The 5th claim is altogether too indefinite, and the application is accordingly refused.

C. W. FORBES, *Examiner.*

Endorsed: $\frac{6}{13}\frac{5}{9}\frac{4}{1}$. Rejection, Aug. 21, 1873.

99 *Power of Attorney.*

Hon. M. D. Leggett, Commissioner of Patents.

SIR: I hereby constitute and appoint W. C. Dodge & Son, of Washington, D. C., as my attorneys in the matter of my application for reissue letters patent for improvement in coal screen and chute, original patent dated June 17, 1873, with full powers to alter and amend my specification, to sign drawings, to receive my patent if granted, and to do all and everything necessary in the premises as fully as though I were present and acting.

Respectfully, MARTIN R. ROBERTS. [L. S.]

Dated at San Francisco, Cal., this 11th day of December, 1873.

[Affix a 50-ct. stamp here.]

Endorsed: Martin R. Roberts. Coal screen — chute. Power of attorney to Dodge & Son. Reissue. U. S. Patent Office, Jan. 30, 1874.

100 To the Com'r of Patents.

SIR: We present herewith an amendment in the reissue case of M. S. Roberts, coal screen, filed Aug. 4, 1873, and request an examination thereon.

Def't's is different, being square.*

The specially important features of this apparatus are, first, the elongated hopper, which receives the coal from a bucket hoisted by a block & tackles at the end of a yard-arm. It is obvious that the bucket when thus raised will swing about more or less, such swinging being increased by the rolling or sway-

[* In pencil in copy.]

ing of the vessel, and that with a square hopper such as is shown in Sparks' screen it will be difficult to empty the contents of the bucket into the hopper.

But by using the elongated hopper, such as Roberts shows, this difficulty is obviated.

Second is the reservoir or secondary hopper O to receive and hold the coal while the carts or vehicles that are to receive and carry it away are being placed in position or changed, the loaded one leaving and an empty one taking its place.

Third, the chute F, which directs the coal from the hopper or reservoir into the cart.

H. makes O & F two distinct elements.†

It is the combination of these three essential features, when constructed and arranged to operate in the manner described, that the present 3rd claim is designed to cover.

This combination is not shown in the references heretofore cited, and it may therefore be properly allowed. Sparks' device of 1869 is but an improvement upon his former device patented Sept. 12, 1865.

101 In both of them he shows merely a square hopper, and in the spfin. of the first he states that it is about three feet square, that being the size of the frame on which it rests, and the hopper being the same size as the top of the *hopper being the same size as the top of the* frame.

Neither of them have any reservoir other than the hopper itself and no chute other than the screen itself. In Sparks' case of 1869 he has a door or gate hinged at the rear end of the hopper itself, but there is no arrangement or means by which the coal after leaving the hopper can be screened and retained in a reservoir ready to fill into carts, as in Roberts'.

The patent of Ceredo, while it may perhaps have had a bearing on the claim as formerly presented, can have non on the present claims. It is simply an ash-sifter intended for screening ashes from stoves, and it has a small hopper, a screen, and a spout.

It has not the combination of devices claimed and shown in the Roberts apparatus, and could not possibly be made to answer the purpose for which this of Roberts is designed *for*.

The.†

The 4th claim is for the same combination, with the addition of the screen and the gate, and is more limited in its character. If the first is clear, this second, including the same elements with more added, is of course allowable.

This device of Roberts has gone into extensive use and has proven to be a very valuable device, but, as his claims now stand,

102 parties are infringing with impunity. It will at once be seen that by merely omitting the second or independent screen or by making any other form of gate by either or both of these they evade his claim while using the vital and important features of his invention.

[† In pencil in copy.]

This is unjust and is not what was intended by the patent law. The intention of the law was that the inventor should be fully protected in his invention, and hence the provision for reissue in case it be found in practice, as in this case, that he is not fully protected by his patent.

There is in the claims now presented nothing but what is clearly shown in his original application, and they are not anticipated by the references heretofore cited. We therefore think they should be allowed and trust they will be.

Heretofore.†

Respectfully, &c., DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{1394}$. U. S. Patent Office, June 29, 1874.

103 To the Com'r of Patents.

SIR: I hereby amend my sp'f'n filed Aug. 4, 1863, by cancelling the 3d, 4th, & 5th claims and substituting the following:

3. "Erased July 8, '74."*

"The elongated hopper B B', with the reservoir O and chute F, all constructed and arranged to operate substantially as described.

4. "B." Insert on page 8.*

In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially such as is herein set forth."

M. S. ROBERTS,
By DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{1394}$. U. S. Patent Office, June 29, 1874.

104 McB. (No. 1.)

Examiner's room No. 103.

U. S. PATENT OFFICE,
July
WASHINGTON, D. C., *Feb'y 4th*, 1874.

Application for impt in coal screen and chutes. Filed Aug. 4th, 1873.

M. R. Roberts, care W. C. Dodge and Son, present:

The amended claims filed Jan. 29 have been examined and the argument submitted carefully considered.

[† In pencil in copy.]
[* In red ink in copy.]
[Matter enclosed between rules erased with red ink in copy.]

The 3rd claim is held to be answered in the references formerly cited in this case, and is accordingly refused.

C. W. FORBES, *Exam.*

Endorsed: $\frac{6}{14,941}$. Rejection, July 4, '74.

105 To the Comm'r of Patents.

SIR: I hereby amend my reissue appl'n filed Aug. 4th, 1873, by cancelling the following:

"A."* Insert on page 8.*

3.* "A combined coal screen and chute, consisting of an elongated hopper, B B', for receiving the coal from a swinging bucket, with the reservoir O, arranged to receive and hold the coal as it passes from the hopper and the chute F, to deliver the coal from the reservoir into carts or other vehicles, all constructed to operate substantially as and for the purpose set forth."

M. R. ROBERTS,
By DODGE & SON, *Att'ys.*

$\frac{6}{14,941}$. Amended July 8, '74. (Cancelled.) U. S. Patent Office, Jul. 8, 1874.

To the Com'r of Patents.

SIR: We present herewith an amendment that we think may be properly allowed in the reissue appl'n of Roberts' coal screen & chute.

This claim, as will be seen, is for the device or apparatus as a whole, containing the three essential features, viz., the hopper, reservoir, and chute, all constructed to operate in the manner described, and which mode of operation is specifically stated in the claim itself. So there can be no question or misapprehension as to what is intended to be covered by the claim.

106

Such a construction is not shown in any of the references and none of them is so made as to operate as this does. Ceredo's ash-sifter, which is understood as being the reference referred to in the last office letter, is a very different thing, designed for a different purpose, and not capable of being used in the manner or for the purpose that this is. As a matter of fact, Ceredo's has no reservoir in the sense in which the term is used in this case. His lower compartment is simply a truncated chute or hopper, the sole function of which is to receive the ashes as they fall from the sieve and conduct them to the ground below. It does not and cannot receive the coal from the hopper above. The coal or coarse material passes from the hopper out through a spout at the side. It lacks entirely the reservoi- contained

Not count.*

[* In red ink in copy.]
[† In pencil in copy.]
[Matter enclosed between rules erased with red ink in copy.]

in Roberts' apparatus and without which Roberts' apparatus would be useless for the purpose intended.

As now amended, we can see no reason why the case should not be allowed and trust it will be.

Respectfully, &c., DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{154}$. U. S. Patent Office, Jul- 8, 1874.

107 McB. Examiner's room No. 103.

(No. 1.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *July 13th*, 1874.

Application for imp't in "coal screen and chutes." Filed Aug. 4th, 1873.

M. R. Roberts, care W. C. Dodge and Son, present:

The amended claim filed July 8 has been examined. The patent of Ceredo shows the same arrangement and combination and is used for a strictly analogous purpose. The patent of Sparks shows that this class of devices are in use for the same purpose as in applicant's case, and the hopper is quite as large in area.

The claim is definitely refused for want of patentable invention.

C. W. FORBES, *Examiner.*

Endorsed: $\frac{6}{154}$. 2 Rejection, July 13, '74.

108 To the Com'r of Patents

SIR: In the matter of the reissue application of M. R. Roberts for a combined coal screen and chute, filed Aug. 4th, 1873, we would say that the ash-sifter of Ceredo is not an answer, for the reasons, first, it has no elongated hopper nor any hopper that can possibly be used in the manner or for the purpose that Roberts' device is designed for; second, it has no reservoir for receiving coal from the hopper and holding or storing it while the carts or other vehicles are absent to be emptied as Roberts' has. In Ceredo's the top part of the box, above the sieve, which the office considers as an answer to Roberts' reservoir, is simply a case to contain the sieve and its operating mechanism and to prevent the dust and ashes from escaping at the top when the sieve is agitated.

Third, it would be impossible to use Ceredo's apparatus in the manner or for the purpose that Roberts' is designed, for two reasons, first, because the sieve is so arranged in the case that the coal would simply lie on it and clog the discharge in such a manner that it would not discharge therefrom, as is necessary in the Roberts apparatus. In Roberts' the screen is stationary and so inclined that the coal will pass over it and be screened when desired by its gravity alone, which cannot be done with Ceredo's; and, second, it is not practicable to use a shaking sieve like Ceredo's to sustain the mass of coal, amounting often to tons in weight, that will necessarily be

stored in the reservoir of the Roberts apparatus; moreover, in the Ceredo sifter, if the so-called reservoir or space above the
109 sieve were filled with coal the operating mechanism would be prevented from operating at all and the sieve could not be shaken.

Without which, as above stated, the coal would simply fall upon the sieve and lie there, the very form, construction, and arrangement of the parts being such that it could not be operated like Roberts'.

It is apparent from the construction and description of Ceredo's sifter that, in order to operate it as he intended, the sieve must be shaken, and for that purpose the operating mechanism must be kept free and clear, and for that reason the space above the sieve cannot be and never was intended to be used as a reservoir for storing or holding the material, as in the Roberts apparatus.

In short, it is a different thing, intended to be used in a different manner and for a different purpose, and by no fair construction can it be considered as an answer to Roberts' claim or apparatus.

It seems to us that any one, taking the two things as they stand and as they are described by their makers, considering the purposes for which they are each designed, the different fields they are to occupy, must see that the one is not and cannot be treated as a fair reference for the other.

In considering references they should be treated of in the sense in which a fair construction of language as ordinarily used will place them.

It is not a mere fancied resemblance that is to be looked — nor mere immaterial variations, but real and substantial differ-
110 ences or resemblances according as the one or the other may be found to exist. See the following cases:

G. W. Brown,	Com'r, Dec., 1869,	p. 11.
H. Waterman,	do.,	" " 51.
Vosburg & Luddon,	do.,	" " 80.
S. Sykes,	do.,	" " 9.
A. Lesner,	do.,	1870, " 204.
C. A. Moore,	do.,	1871, " 249.
J. A. & T. Wood,	do.,	" " 56.
L. Miller,	do.,	1872, " 95.
C.W. & W.W. Marsh,	do.,	" " 180 & '1.
T. N. Foster,	do.,	1873, " 146.
O. Underwood,	do.,	" " 152.
J. & J. Dobson,	do.,	" " 150.

This case, we contend, comes fully within the principles or rule of action laid down in the foregoing decisions, to which many more by the courts might be added, and it is therefore clear that applicant is entitled to the claim, or, in other words, that the reference cited is not an anticipation of his invention.

A re-examination is requested.

Respectfully, &c., DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{1391}$. Applicant's letter, July 20, '74. U. S. Patent Office, July 20, 1874.

111 McB. Reissue.

Examiner's room No. 103.

U. S. PATENT OFFICE,
WASHINGTON, D. C., *July* 23, 1874.

Imp't in coal screens. F'd Aug. 5, 1873.

M. R. Roberts, care W. C. Dodge and Son, present:

The amended claim filed July 8, 1874, has been re-examined in view of the argument filed July 20. No reason appearing for changing the former decision, the claim is definitely refused and applicant refused this legal remedy of appeal.

C. W. FORBES, *Exam.*

Endorsed: $\frac{6}{1391}$. Rejection, July 23, '74.

SAN FRANCISCO, *July 25th*, 1874.

Hon. Commissioner of Patents.

SIR: I hereby revoke the power of attorney which I gave to Dewey & Co. and A. H. and R. K. Evans for the purpose of prosecuting my application for a reissue patent on "improved coal screen and chute," filed August 4th, 1873, and appoint W. C. Dodge & Son, of Washington, D. C., as my attorneys to prosecute said application and to do everything which may be required in the premises to secure said reissue patent.

M. R. ROBERTS.

112 Endorsed: Martin R. Roberts. Coal screen and chute. Filed Aug. 4, 1873. Power of att'y to Dodge & Son. U. S. Patent Office, Aug. 3, 1874.

To the Comm'r of Patents.

SIR: We file herewith an amendment in the application of M. S. Roberts, reissue, for coal screen & chute, filed Aug. 4, 1873, adding to the combination the gate as suggested by the decision of the Com'r of claim from objection.

As now presented we suppose the case may be allowed without further delay, and as it has been a long time in the office we request as speedy action as is convenient.

Respectfully, &c., DODGE & SON, *Att'ys.*

Endorsed: U. S. Patent Office, Oct. 31, 1874.

113 To the Com'r of Patents.

SIR: In accordance with the decision of the Com'r in person of the 27th Oct., we present herewith an amended claim in lieu of the 3d, including the gate *b* as an element of the combination as required by the decision.

As now amended we suppose there can be no reason for further delay, and as the case has been a long time pending we request that it may be passed for issue as speedily as possible.

Respectfully, &c., DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{13}\frac{6}{91}$. App't's letter, Nov. 10, '74. U. S. Patent Office, Nov. 10, 1874.

114 To the Com'r of Patents:

I hereby amend my sp'f'n filed Aug. 4, 1873, by cancelling the 3d claim and substituting the following:

3. "A." Insert on page 8.* "The combination of the hopper B B' for receiving the coal from a swinging bucket, the reservoir O arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth."

M. R. ROBERTS.
By DODGE & SON, *Att'ys.*

Approved for examination.

J. M. THACHER, *Com'r.*

Endorsed: $\frac{6}{13}\frac{6}{91}$. Amendment. U. S. Patent Office, Nov. 10, 1874.

(No. 1.) Reissue.

Examiner's room No. 103.

U. S. PATENT OFFICE.
WASHINGTON, D. C., *Nov.* 11, 1874.

Appl'n for reissue of patent No. 140,077, dated June 17, 1873.

M. R. Roberts, care W. C. Dodge & Son, present:

The claim presented in amendment filed Nov. 10 has been examined. It covers the same subject-matter as the 4th
115 clause.

The 3rd and 4th clauses of claims are therefore tautologous and cannot be entertained in the same application.

The 4th claim is more definitely expressed and should be retained.

CHAS. W. FORBES, *Exam.*

Endorsed: $\frac{6}{13}\frac{6}{91}$. Letter, Nov. 11, '74.

To the Com'r of Patents:

I hereby appeal from the decision of the examiner, rendered Nov. 11th, in the matter of my reissue of patent No. 140,077, for an appa-

[* In red ink in copy.]

ratus for unloading coal from vessels, to the Com'r in person, as provided for by rule 44

M. S. ROBERTS,
By DODGE & SON, *Att'ys.*

Reasons of Appeal.

To the Com'r of Patents.

SIR: In this case the examiner holds that the present 3d and 4th claims cover the same subject-matter.

He also holds that said claims cannot be entertained in the same case, because they are, as he says, tautologous.

He also says the 4th claim should be retained, which, taken
116 in connection with the previous statement that both cannot be entertained, is equivalent to saying that the 3rd claim must be stricken out.

This — certainly most remarkable action in view of the fact that this 3rd claim as it now stands was allowed by your honor on appeal.

That is to say, as it was when appealed, it was for the combination of the hopper, the reservoir, and the chute—three elements—and your honor decided that if we added the gate as a fourth element in the combination it would avoid the reference and, of course, be allowed unless a new reference was found. We did so amend it, and no new reference has been given, and yet the examiner in effect overrules your honor and says it must be stricken out.

The first point raised by him is one of fact, viz., that the 3d and 4th claims are the same, or, as he puts it, they cover "the same subject-matter."

This is not so, as is shown at a glance on comparing the two claims, and we are at a loss to conceive what could have put such an idea into his head.

The 3d claim is for the combination, in the apparatus described, of four elements or devices, to wit, the hopper, the reservoir, the chute, and the gate.

The 4th claim is for the combination of these same elements with another, viz., the screen D, thus making five elements in this combination.

Now, as "the greater includes the less," we cannot have the five without necessarily having the four, and yet he says we may have the claim to the five, but not to the four.

117 Your honor will see by examining the case that the machine is so made that the screen may be used or not at will. Special provision is made for this by providing a false bottom, which, when in place, prevents the screen from operating, and when that is the case we then have the four elements named in the 3d claim cooperating or in combination. At such times the screen is as effectually out of the combination as though it had never

3, covered by 2d claim.*
Ex.: A. M.*

[* In pencil in copy.]

been in existence. At such times the machine operates precisely the same as it would if the side of the reservoir where the screen is had been made solid.

That is the ground for the 3rd claim, which your honor allowed, but which the examiner says we must strike out.

When the false bottom is out as it is when we want to screen the coal, then the screen comes into operation and we then have the combination or co-operation of the five elements covered by the 4th claim.

Now your honor will see, if the examiner don't, why we should not be limited to the 4th claim. If we were, then any person could make our machine, leaving out the screen, and we could not prevent him, because without that element he would not have the combination covered by the 4th claim. Hence the necessity of the 3d claim covering the combination as it exists when the screen is not used.

3d claim covers this alternative. Ex.

All this is so plain and so elementary in patent matters that it almost seems like trifling with the office to have to state it.

As to his other point, that tautologous claims cannot be allowed, we have simply to say that this matter has been so long
118 and so authoritatively settled that we are surprised to see it raised at this late day.

See Decision of the Board of Appeals in the case of W. C. Dodge, Sept. 7, 1864, vol. 4, p. 204.

In that case the two claims were for a combination of the same three elements, but differently expressed, and the board say, "Neither ought to be neglected on the sole ground that a difference in their legal effect is not clearly apparent to the office. We hold that an inventor has the right, out of abundant caution, to couch in different language two or more claims intended to cover one and the same feature of his invention."

And they add, very properly, "There is no more propriety in refusing to execute the grant (grant the patent) because the applicant claims the same thing in two different forms of language than there would be in the vendor of a tract of land refusing to execute a deed prepared by the purchaser because the words 'grant, sell, alien, and convey' are all used in it, when any one without the others would have had the same effect."

See also Com'r's Dec's, 1869, p. 3, where the same doctrine is reaffirmed. Foote.

As — this third point, that we should strike out the 3d claim, which your honor allowed by your decision, we have that for him to settle with your honor. We read in the Gazette, vol. 6, No. 15, p. 506, a decision of the Com'r holding that a decision once rendered by the Com'r was binding on all the subordinate branches of the
119 office, but the action in this case would seem to indicate that the examiner thought differently.

We are wholly unable to see any valid reason for this action on

[† In pencil in copy.]

the part of the examiner, and we ask that the case may be disposed of as soon as possible, as it has been a long time tied up here in the office.

DODGE & SON,
Att'ys for Roberts.

Endorsed: M. S. Roberts. Coal screen & chute. Reissue filed June 1, '73. Interlocutory appeal to Com'r in person. U. S. Patent Office, Nov. 16, 1874.

Interlocutory Appeal to the Commissioner in Application of M. R. Roberts for Reissue of Patent No. 140,077, Dated June 17, 1873.

Hon. Com'r of Patents.

SIR: The 3rd and 4th claims in the above application are considered tautologous.

The 3rd claim has been presented and approved by your honor for examination since your decision was rendered in this case on appeal from the examiners-in-chief.

Upon examination of this claim and a careful consideration of the argument presented it is evidently intended to cover
120 the reservoir O, when provided with a solid fixed bottom, as an element of the combination.

If the claim should be interpreted to mean this it would be entirely unwarranted by the patent and regarded as "new matter" for the reason that no such construction is shown or described.

The claims are as follows: 3rd. The combination of the hopper B B' for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth."

4th. "In combination with the elongated hopper, the screen D, reservoir O, and chute F with its gate *h*, the combination being substantially such as herein set forth."

It will be observed that the "screen D" is not mentioned in the 3rd claim.

This screen forms the fixed bottom of the reservoir, and applicant claims, 3rd, the combination of the hopper, reservoir, chute, and gate, "all constructed" as shown and described. If there is any substantial difference intended by the two claims it should be more clearly defined, and if the 3rd claim is intended to cover the reservoir as an element with a solid bottom it must be interpreted to refer to the device covered by the 2nd claim, which embraces the "false bottom" in the same combination.

How is the reservoir constructed? With a fixed screen for its bottom: and the specification so described it.

121 Therefore I hold that the 3rd claim is indefinite for the reason that it is necessary to refer to the specification to interpret it and when interpreted means exactly what the 4th claim expresses, and consequently the claims are tautologous.

I have suggested the removal of the 3rd claim on account of its

vague and indefinite character as compared with the 4th, which is more clearly defined.

Applicant states in his argument "that the machine is so made that the screen may be used or not at will.

"Special provision is made for this by providing a false bottom, which when in place prevents the screen from operating, and when that is the case we then have the four elements named in the 3rd claim co-operating or in combination. At such times the screen is as effectually out of the combination as though it had never been in existence. At such times the machine operates precisely the same as it would if the side of the reservoir where the screen is had been made solid."

Covered by 2d claim.

In answer to the above it is only necessary to call your attention to the fact that the subject-matter referred to is covered by the 2nd claim.

Resp. submitted.

C. W. FORBES, *Examiner.*

Hon. J. M. Thacher, Com'r of Patents, Nov. 18, 1874.

Endorsed: $\frac{5}{1574}$. Exam. answer to interlocutory appeal.

122 (Copy.)

U. S. PATENT OFFICE.
WASHINGTON, D. C., *November 19th*, 1874.

In the Matter of the Application of M. R. ROBERTS for a Reissue, "Coal screens." } Interlocutory Appeal Before the Commissioner.

You are informed that the above appeal will be heard before the Commissioner November 20th, 1874.

Respectfully,

———, *Commissioner.*

M. R. Roberts, care Dodge and Son, present.

Endorsed: Notice of hearing by the Commissioner. (2.) Interlocutory of M. R. Roberts.

In the Matter of the Application of MARTIN R. ROBERTS for Letters Patent. "Improvement in coal screens and chutes."

Appeal from the primary examiner.

The two claims do not appear to me to be strictly the same. The fourth differs from the third in having the element of the "screen D." It is not for me now to decide whether or not the third claim is for patentable matter, but certainly if it is then the fourth claim is patentable also. Both are based on the original patent, and, so far as form is concerned, I see no objection to either.

123 The decision of the examiner is reversed.

ELLIS SPEAR,
Acting Commissioner.

Nov. 20th, 1874.

Endorsed: Commissioner's decision. M. R. Roberts, interlocutory. Recorded vol. 15, p. 161.

(Copy.)

U. S. PATENT OFFICE,
WASHINGTON, D. C., *November* 21, 1874.

In the Matter of the Reissue Application of M. R. ROBERTS for "Coal Screens." } Interlocutory Appeal Before the Commissioner.

You are informed that the decision of the primary examiner is reversed by the Commissioner.

Respectfully,

—— ——,
Commissioner.

M. R. Roberts, care Dodge and Son.

Endorsed: Notice of Commissioner's decision, M. R. Roberts' interlocutory appeal.

124 To the Com'r of Patents.

SIR: I hereby amend my sp'f'n filed June —, 1873, as follows:

On page 2, line 14, cancel the word hopper and insert "framework supporting a hopper reservoir."

On page 5, line 14, cancel all of the word ship to end of paragraph.

Also by substituting the word "reservoir" for "lower hopper" wherever the letter occurs in sp'f'n & *cl*aims.

M. R. ROBERTS,
By DODGE & SON, *Att'ys.*

Endorsed: $\frac{6}{1874}$. Amendment, Nov. 25, '74. U. S. Patent Office, Nov. 25, 1874.

125 $\frac{6}{1874}$. U. S. Patent Office.

Reissue application of Martin R. Roberts. Filed Aug't 5, 1873.

Contents of the File.

1. 1 application.
2. Rej. Aug. 21, '73.
3. App't's let. June 29, '74.
4. Am'd't June 29, '74.
5. Rej. July 4, 1874.
6. Am'd't Jul- 8, '74.
7. Appl's let. July 8, '74.
8. 2 rej., July 13, '74.

9. Appl's let. July 20, '74.
10. Rej. July 23, '74.
11. Appl's letter Nov. 10, '74.
12. Am'd't Nov. 10, '74.
13. Letter Nov. 11, '74.
14. Interlocutory appeal.
15. Am'd't Nov. 25, '74.
16. Brief of invention.

126 $\frac{6}{1594}$. 1873.

Reissue.

Martin R. Roberts,
Of San Francisco,
County of "
State of California.
Coal screens and chutes.
Rec'd Aug. 4, 1873.
Petition, " "
Affidavit, " "
Specification, " "
Drawing, ——.
Old patent, No. 140,077, June 17, 1873.
1. Abstract of title, Aug. 5, 1873.
Cert. dep., 830, Aug. 4, 1873.
Cash, ——.
Examined 27 Nov., '74. Forbes.
2. Issue, Dec. 31, '74. Knight.
3. Patented June 17, 1873.
Reissued Jan'y 5, 1875.
Recorded vol. —, page —, Cir. Dec. 31, '74.
W. C. Dodge & Son, present.

[Written across the face in red ink:] Reissued Oct. 10, 1876. No. 7341.

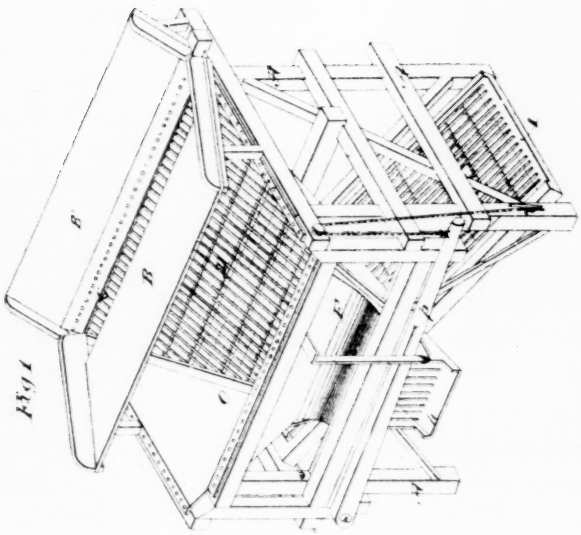
127 1873.

Rejected Aug. 21, 1873.
Rej. July 4, 1874.
2nd rej., July 13, 1874.
" July 23, 1874.
3rd rej., by board, Aug. 25, '74.
" rej., by Com'r, Oct. 27, '74.
Letter Nov. 11, 1874.
Ex. statement in interlocutory appeal, Nov. 18, '74.

M. R. ROBERTS.

Coal Screens and Chutes

No. 6,211. Reissued Jan. 5, 1875.


B
B
A
A
A

129 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,977, dated June 17, 1873; Reissue No. 6211, dated January 5, 1875; application filed August 4, 1873.

To all whom it may concern:

Be it known that I, Martin R. Roberts, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful improvements in a combined portable hopper, chute, and screening apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

In the apparatus at present used for unloading ships the coal is hoisted in a tub by ropes and tackle high enough above the decks to pass clear of the bulwarks in swinging out over the wharf and is poured from the elevated tub and falls a distance of from ten to thirty feet upon the wharf or upon the pile of coal already dumped thereon.

In this operation the coal is damaged by being broken in falling from the tub and in breaking the already dumped coal on which it falls.

130 The coarse coal and screenings or fine coal are all in the dump together, unassorted, and have to be shoveled from the wharf into vehicles for removal to the coal yards, where it has to be again shoveled over one or more times in screening. Each time the coal is thus handled its cost is increased by the expense of the labor required to do the handling, and at the same time the coal is injured by being to a greater or less extent broken and pulverized.

The object of my invention is to save expense in the unloading of coal from water craft and in screening and in reloading the same into vehicles for further transportation, to accomplish these results with greater dispatch and convenience than is now done, and to prevent as far as possible the breaking and pulverizing of the coal in unloading, reloading, and screening it.

My invention consists of a portable frame-work supporting a hopper, reservoir, chute, and screening apparatus especially adapted to the accomplishment of the object above stated.

In order to more fully illustrate and explain my invention reference is had to the accompanying drawing, forming a part of this specification, in which—

(Here follows diagram marked p. 128.)

A A represents a strong frame, which is properly stayed and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards B B′ at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described. These boards
131 form what I call the hopper. The board B′ forms an extension to one side D of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes towards the opposite side of the frame and is constructed of parallel wires secured at short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir and through which the small particles, up to a certain size, will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted towards its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent grate or screen, I, of finer mesh than the gate D, is secured in an inclined position in the frame A A below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or
more of these screens can be used, and the size of the meshes
132 can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships, but when moving it from one wharf to another I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any wheeled vehicle.

The hopper B B′ is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall and is thereby prevented from being broken and pulverized. The outlet of the hopper B B′ extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D and has to pass its entire length, thus insuring a thorough screening of the coal. The con-

struction and location of this hopper B B′ makes it a success in receiving the contents of a tub swung from a yard-arm, a result which, I believe, was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position and making it large several advantages are obtained. Among others, a large screening surface is obtained, the gate *h* is sufficiently high from the wharf to allow vehicles to be driven under it and receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf, and the reservoir O is large enough to serve as a store-room, so that in case of temporary delay in the vehicles carrying the coal to the yards the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal-pile.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. The receiving-hopper B B′, in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

2. The metal blank or false bottom K, in combination with the receiving-hopper B B′, reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

3. The combination of the hopper B B′, for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth.

4. In combination with the elongated hopper, the screen D, reser-

voir O, and chute F, with the gate *b*, the combination being substantially such as is herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of July, 1873.

MARTIN RICHARD ROBERTS. [L. S.]

Witnesses:
P. O. WEGENER.
JOHN L. BOONE.

Endorsed: Opened & refiled Sept. 10, 1880. L. S. B. Sawyer, clerk, by F. D. Monckton, deputy clerk. (10247. Plff's Ex. D.)

135 (Mr. Estee, of counsel for defendant, now offered in evidence file-wrapper and contents of the Patent Office in the matter of the reissue letters patent granted to Martin R. Roberts, dated October 10, 1876, No. 7341, for improvements in coal screens and chutes, properly certified to by the department, C. E. Willard, Commissioner. Introduced in evidence and marked "Defendant's Exhibit E.")

(The court stated that the said file-wrapper would be considered as read.)

(NOTE.—The interlineations, corrections, crossings out, and marginal references in red ink and pencil in the following exhibit, forming part of the bill of exceptions, conform exactly to such interlineations, etc., as they appear in the original bill of exceptions.)

136 U. S. Circuit Court, N. Dist. of Cal.

EXCELSIOR COAL CO.)
v.) No. 10248.
OREGON IMPROVEMENT CO.)

RESPONDENT'S EXHIBIT ROBERTS REISSUE No. 7341. S. C. H., Examiner.

DEPARTMENT OF THE INTERIOR.

(Vignette.)

UNITED STATES PATENT OFFICE.

To all to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the files of this office of the file-wrapper and contents in the matter of the reissue letters patent granted Martin R. Roberts October 10, 1876, number 7341, for improvement in coal screens and chutes.

In testimony whereof I, C. E. Mitchell, Commissioner of [SEAL.] Patents, have caused the seal of the Patent Office to be affixed this 4th day of April, in the year of our Lord one thousand eight hundred and eighty-nine, and of the Independence of the United States the one hundred and thirteenth.

C. E. MITCHELL,
Commissioner.

137 *Power of Attorney.*

Hon. Commissioner of Patents.

SIR: You will please recognize Messrs. Dewy & Co., of San Francisco, Cal., and Ellis Spear, of Washington city, D. C., as my true and lawful attorneys in the accompanying application for reissue of patent for coal screens and chutes, to do all which they may lawfully do in the matter and to receive the letters patent when granted.

MARTIN R. ROBERTS.

San Francisco, Cal., June 19th, 1876.

Petition.

To the Commissioner of Patents:

Your petitioner, Martin R. Roberts, of San Francisco, California, prays that he may be allowed to surrender the letters patent for an improvement in coal screens and chutes granted to him June 17th, 1873, and reissued Jan. 5th, 1875, whereof he is now owner, and that new letters patent may be reissued to him for the same invention upon the amended specification.

Accompanying this petition is an abstract of title duly certified, as required in such cases.

MARTIN R. ROBERTS.

The undersigned, one of the assignees of an interest in the abovementioned letters patent, hereby assents to the accompanying application.

M. R. ROBERTS, Jr.

138 The undersigned, assignee of an undivided interest in the letters patent (reissue No. 6211) which *was* issued to Martin R. Roberts for an improved coal screen and chute January 5th, 1875, hereby assents to the accompanying application.

STEPHEN ROBERTS.

To all whom it may concern:

Be it known that I, Martin R. Roberts, of the city and county of San Francisco and State of California, have invented a certain new and useful improvement in a combined portable hopper, chute, and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment:

Substitute "B." Aug. 23, '76.*

An inadequate representation of the state of the art.†

Previous to my invention coal and similar cargoes were hoisted from the holds of ships and dumped in a pile directly upon the wharf. The apparatus employed for this purpose consisted of a tub, which was swung from the yard-arm of the ship by means of suitable tackle and ropes, so that the tub could be lowered into the ship's hold to be filled and then hoisted by steam or other suitable power to the required height to clear it from the bulwarks of the vessel, so that it could be swung out over the wharf or previously dumped pile of coal and emptied by being turned upside down. The coarse coal and screenings of fine coal are all in the dump together, unassorted, and have to be shoveled from the wharf into vehicles for removal to the coal yards, where it has
139 to be again shoveled over one or more times in screening. Each time the coal is thus handled its cost is increased by the expense of the labor required to do the handling, and at the same time the coal is injured by being, to a greater or less extent, broken and pulverized. This process was extremely destructive to both the coal and the wharf—first, because the continual dumping on the wharf destroyed it; secondly, it necessitated the keeping of a large pile of coal on the wharf, which was inconvenient on account of the space it occupied, and the coal was apt to scatter over a considerable space when it fell, and it was impossible for the carters to shovel it up from the pile and load it into carts as fast as the tubs could hoist and deliver it upon the wharf; thirdly, the impact of the coal which fell from the bucket upon the already accumulated pile of coal was very destructive to the large lumps, because they were often broken into small pieces, thus reducing the value of the cargo by producing a larger percentage of screenings of fine coal. Again, it was a noted fact that when the coal was thus dumped in a pile upon the wharf the large coal dealers who first purchased the right to cart away a portion of the pile invariably pick out the large and fine pieces of

[* In red ink in copy.]
[† In pencil in copy.]
[Matter enclosed between rules erased with red ink in copy.]

coal, leaving the finer and less profitable quality for the small dealers or subsequent purchasers, thus unjustly dividing the cargo.

The object of my invention is to remedy these evils by providing, in combination with said swinging tub (suspended from the yard-arm of the vessel) and operated so as to hoist its load of coal and dump it over the wharf, a combined coal-receiving, coal-screening, and coal-delivering apparatus or machine which will receive the coal from the tub without subjecting it to undue impact, separate the fine coal or screenings automatically, and deliver the larger pieces, which do not pass through the screen directly, into the carts without unnecessary handling or trouble.

New matter.*
No comb'n.*

In order to more fully illustrate and explain my invention reference is had to the accompanying drawing, forming a part of this specification, in which—

A A represents a strong frame which is properly stayed and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards B B at an obtuse angle to each other, in the form of a triangle, but leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described. These boards form what I call the hopper. The board B' forms an extension to one side D of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes toward the opposite side of the frame and is constructed of parallel wires secured at about six inches apart so as to form a screen, over which the coal or other substance must pass in descending from the hopper to the reservoir and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or larger hopper. The reservoir is contracted towards its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located,

Erased Aug. 23, '76.*
New matter.*
2*

the frame A A being high enough to permit a cart or other vehicle to be drawn in underneath the lower end of the chute.

[* In red ink in copy.]
[† In pencil in copy.]
[Matter enclosed between rules erased with red ink in copy.]

A gate, *h*, which will be more fully described hereafter,
141 serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into the cart or other vehicles. An independent crate or screen, I, of finer mesh than the grate D is secured in an inclined position in the frame A A, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions, which pass through the screen, will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships, but when moving it from one wharf to another I employ axles across each end of the frame, so that the entire machine can be drawn along similar to any vehicle.

The hopper B B' is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall and is
142 thereby prevented from being broken and pulverized. The outlet of the hopper B B' extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D and has to pass its entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper B B' makes it a success in receiving the contents of [a tub the bucket by which the coal is hoisted from the hold of the vessel,] swung from a yard-arm.]‡ A a result which, I believe, was never before accomplished by any hopper.)

Tub.*

2*

No.*

New matter.*

This upper hopper, however, could be dispensed with, and the coal could be dumped directly into the reservoir hopper O, so that it shall pass over the screens, the only necessity being that the coal should pass over a screen or set of screens after it leaves the tub and before it enters the cart.

Erased Aug. 23, '76.*

New matter.† 3.†

[* In red ink in copy.]
[† In pencil in copy.]
[‡ Matter enclosed in brackets erased with red ink in copy.]
[Matter enclosed between rules erased with red ink in copy.]

By placing the reservoir O in its peculiar position and making it large, several advantages are obtained. Among others, a large screening surface is obtained; the gate *h* is sufficiently high from the wharf to allow vehicles to be [driven under it and][‡] receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf; and the reservoir O is large enough to serve as a store-room, so that in case of temporary delay in the vehicles carrying the coal to the yards, the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

placed, was to*

New matter.†

New, but manifest.†

When it is not desired to screen the article or substance to be unloaded a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

143 The gate or cut off which — use consists of a lever bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute the free end of the lever is raised so as to clear the teeth from the mouth of the chute and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wasting, as the large and more marketable pieces or lumps will not be broken when dumped into this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal pile.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

[* In red ink in copy.]
[† In pencil in copy.]
[‡ Matter enclosed in brackets erased with red ink in copy.]

Substitute "A," July 18, '76.*

No.*
New matter.*
2 not shown: out 1.*

1. In combination with a swinging tub suspended from the yard-arm of a ship or other water craft and operated so as to hoist coal or other equivalent cargo from the ship's hold, (I claim) a combined (coal) receiving, (coal) screening, and (coal) delivering apparatus arranged to receive the coal from (the swinging buckets,) screen it automatically, and deliver it into carts substantially as and for the purpose described.

144 ?* Yes.*

2. The receiving hopper B B', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described.

?* Yes.*

3. The metal blank or false bottom K, in combination with the receiving hopper B B', reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

Same identically.* ?* Ryon Eng. patents.*

4. The combination of the hopper B B', for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth.

Ryon Eng. patents.*

5. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with gate *h*, the combination being substantially as is herein set forth.

MARTIN R. ROBERTS.

J. L. BOONE.
CHAS. G. PAGE.

[In testimony that I claim the foregoing, I have hereunto set my hand and seal.]†

——— ———. [L. S.]

Witness:
——— ———.

CITY AND COUNTY OF SAN FRANCISCO, } ss.:
County *of California*, }

Martin R. Roberts, the above-named petitioner, being duly sworn, deposes and says that he verily believes that by reason of an insufficient or defective specification his aforesaid letters patent are inoper-

[* In red ink in copy.]
[† In pencil in copy.]
[‡ Matter enclosed in brackets erased with red ink in copy.]
[Matter enclosed between rules erased with red ink in copy.]

ative or invalid; that the said error has arisen from inadvertence, accident, or mistake and without any fraudulent or deceptive intention to the best of his own knowledge and belief; that he is the sole owner of said letters patent, and that *this* verily believes himself to be the original and first inventor of the improvement set
145 forth and claimed in this amended specification.

MARTIN R. ROBERTS.

Sworn to and subscribed before me this nineteenth day of June, 1876.

[SEAL.] WILLIAM HAMEY,
Notary Public, San Francisco.

No. 6211. Reissue.

UNITED STATES OF AMERICA.

(Vignette.)

To all to whom these presents shall come:

Whereas Martin R. Roberts, of San Francisco, California, has presented to the Commissioner of Patents a petition praying for the reissue of letters patent for an alleged new and useful improvement in coal screens and chutes (for which letters patent were issued to him, dated June 17, 1873; which letters having been surrendered the same have been cancelled, and new letters patent ordered to issue to him on an amended specification), a description of which invention is contained in the specification, of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of law in such case made and provided; and

Whereas, upon examination made, the said claimant is adjudged to be justly entitled to a patent under the law:

Now, therefore, these letters patent are — granted unto the said Martin R. Roberts, his heirs or assigns, for the term of seventeen years from the seventeenth day of June, one thousand eight hundred and seventy-three, the exclusive right to make, use, and
146 vend the said invention throughout the United States and the territories thereof.

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the city of Washington, this fifth day of January, in the year of our Lord one thou-
[SEAL.] sand eight hundred and seventy-five, and of the Independence of the United States of America the ninety-ninth.

B. R. COWEN,
Acting Secretary of the Interior.

Countersigned:

J. M. THACKER,
Commissioner of Patents.

148 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,077, dated June 17, 1873; Reissue No. 6211, dated January 5, 1875; application filed August 4, 1873.

To all whom it may concern:

Be it known that I, MARTIN R. ROBERTS, of San Francisco, in the county of San Francisco and State of California, have invented certain new and useful improvements in a combined portable hopper, chute, and screening apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof that will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

In the apparatus at present used for unloading ships the coal is hoisted in a tub by ropes and tackle high enough above the decks to pass clear of the bulwarks in swinging out over the wharf and is poured from the elevated tub and falls a distance of from ten to thirty feet upon the wharf or upon the pile of coal already dumped thereon.

In this operation the coal is damaged by being broken in falling from the tub and in breaking the already dumped coal on which it falls.

The coarse coal and screenings or fine coal are all in the dump together, unassorted, and have to be shoveled from the wharf into vehicles for removal to the coal yards, where it has to be
149 again shoveled over one or more times in screening. Each time the coal is thus handled its cost is increased by the expense of the labor required to do the handling, and at the same time the coal is injured by being to a greater or less extent broken and pulverized.

The object of my invention is to save expense in the unloading of coal from water craft and in screening and in reloading the same into vehicles for transportation, to accomplish these results with greater dispatch and convenience than is now done, and to prevent as far as possible the breaking and pulverizing of the coal in unloading, reloading, and screening it.

My invention consists of a portable frame-work supporting a hopper, reservoir, chute, and screening apparatus especially adapted to the accomplishment of the object above stated.

In order to more fully illustrate and explain my invention reference is had to the accompanying drawing, forming a part of this specification, in which—

(Here follows diagram marked p. 147.)

M. R. ROBERTS.

Coal Screens and Chutes

No. 6,211. Reissued Jan. 5. 1875.

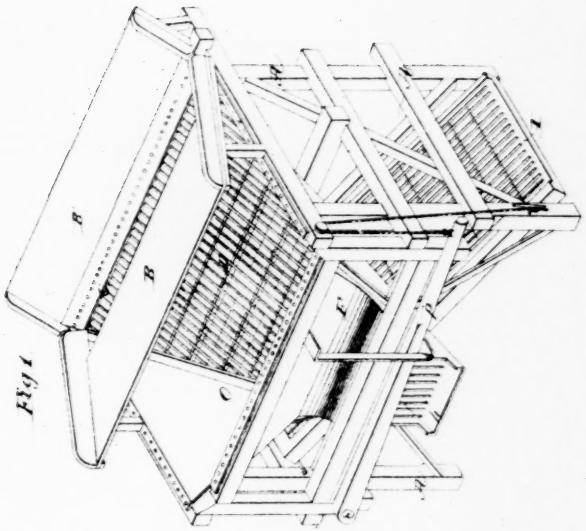


Fig 1

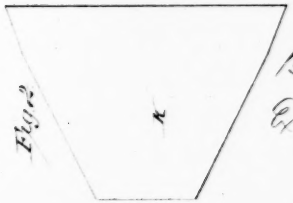


Fig 2

No. 2010
P.D. Coal Mining Co.
N. } p. 147
Excelsior Coal Co.

Attest:
R. H. Whittlesey.
L. L. Evans

Inventor:
Martin R. Roberts
by Att'y R. K. Evans
his Atty

A A represents a strong frame, which is properly stayed and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards B B′ at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described. These boards form what I call the hopper. The board B′ forms an extension to one side D of a large reservoir, O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes towards the opposite side of the frame and is constructed of parallel wires secured at short distances apart, so as to form a screen
150 over which the coal or other substance must pass in descending from the hopper to the reservoir and through which the small particles, up to a certain size, will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted towards its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into a cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships, but when moving it from — wharf to another I employ axles across each end of the frame, upon which
151 strong wheels are placed, so that the entire machine can be drawn along similar to any wheeled vehicle.

The hopper B B′ is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine and but slightly above the inclined sides of the reservoir, so that the coal has but a short distance to fall and is thereby prevented from being broken or pulverized. The outlet of the hopper B B′ extends entirely across the upper end of the side or screen D, and has to pass its entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper B B′ makes it a success in

receiving the contents of a tub swung from a yard-arm, a result which, I believe, was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position and making it large several advantages are obtained. Among others, a large screening surface is obtained, the gate *h* is sufficiently high from the wharf to allow vehicles to be driven under it and receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf, and the reservoir O is large enough to serve as a store-room, so that in case of temporary delay in the vehicles carrying the coal to the yards the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the sub-
152 stance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth *h* extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts not only at a great saving of expense in handling it, but with less wastage, as the large lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal-pile.

Having thus described my invention, what I claim, and desire to secure by letters patent, is—

1. The receiving-hopper B B′, in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

2. The metal blank or false bottom K, in combination with the receiving-hopper B B′, reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

3. The combination of the hopper B B′, for receiving the
153 coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed substantially as and for the purpose set forth.

4. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially such as is herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 24th day of July, 1873.

MARTIN RICHARD ROBERTS. [L. S.]

Witnesses:
P. O. WEGENER.
JOHN L. BOONE.

154 United States Patent Office.

(Vignette.)

To all to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the digest of this office of all assignments, licenses, powers of attorney, and other instruments of writing found of record under or relating to letters patent granted to Martin R. Roberts—No. 140,077, June 17, 1873—for "coal screen and chute."

In testimony whereof I, W. H. Doolittle, acting Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed this ninth day of July, in the year of our Lord one thousand eight hundred and seventy-six, and of the Independence of the United States of America the one hundred and first. [L. S.]

W. H. DOOLITTLE,
Acting Commissioner.

Assignors: Martin R. Roberts.	Same.
Assignees: Martin R. Roberts, Jr.	Stephen B. Roberts.
Date of assignment: Feb. 13, '74.	Feb. 14, '74.
Date of record: Feb. 28, '74.	Feb. 28, '74.
Invention: "Coal screens and chutes," June 17, '73, No. 140,077.	Same.
Territory assigned: All his right in said invention and patent in the States of California, Oregon, and Nevada and the Territories of Washington, Colorado, and Arizona.	All his right in said invention and patent in the State of New York.
	Liber Q, page 232.

155 (Cop'd and sent. A. S.)

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *July* 15, 1876.

Coal screens & chutes. Old patent, No. 8211. Present filed Jan'y 5, '75. Reissue filed July 11, '76.

Martin R. Roberts, care Ellis Spear:

The following passages are held to be new matter and should be cancelled: On page 5, the last two words of line 6 & the next three lines; on page 7, line 15, to the first two words of line 19, inclusive.

On same pg. last three lines and next pg. to the first semicolon. Lastly, all statements that a tub is suspended from a yard-arm of a ship. This statement appears among other places in 1st claim.

STOCKING, *Examiner.*
E. CADY, *Assist.*

Endorsed: Letter, July 14, '76.

Hon. Comm'r of Patents.

SIR: I hereby amend my application for reissue of letters patent for an improvement in coal screens and chutes, filed July 10th, 1876, by erasing the first (1st) claim and inserting the following:

"A," Sep. 22, '76. Insert on page 9.*

1. I claim a [portable]* combined coal receiving, screening, and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket by which it is hoisted from the hold of a ship or other water craft, and to screen it automatically [easily moving it, (provided with means for facilitating its movement,)]‡ said apparatus being [made movable,]‡ constructed and arranged substantially* and deliver it into carts, [substantially]‡ as [and for the purposes]‡ described [set forth].‡

156

Aug. 23, '76.*
Sep. 22, '76.*

Respectfully submitted.

MARTIN R. ROBERTS,
By ELLIS SPEAR.

Washington, July 18th, 1876.

Endorsed: 8754. Amendments, July 18, '76. U. S. Patent Office, July 18, 1876.

Copied and sent. A. S.

Room No. 103.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *July 20th*, 1876.

Reissue of No. 140,077. This app'n filed July 10, 1876.

M. R. Roberts, care Ellis Spear, present:

The requirements respecting new matter are repeated. The amended claim includes one of these passages of new matter.

STOCKING, *Ex'r.*

Endorsed: 8754. Letter, July 20, '76.

[* In red ink in copy.]
[† Words enclosed in brackets erased with red ink in copy.]
[‡ In pencil in copy.]
[§ Erased with pencil in copy.]

157 Hon. Comm'r of Patents.

SIR: I hereby amend my application for improvements in coal screens and chutes, filed July 10th, 1876, as follows:

Erase on page 5, as per letter, last 2 words of line 6 and next three lines.

On page 7, erase from line 15 to line 22, inclusive.

On same page, in last two lines, erase "driven under it and" and insert instead "placed so as to."

On 12th line, page 7, erase the words "a tub swung from a yard-arm" and insert instead "the bucket by which the coal is hoisted from the hold of the vessel."

Erase all that part of the specification beginning with the words "previous to," page 4, down to line 4, inclusive, page 4, and insert instead the following:

Insert on page "B."* 1.*

Previous to my invention in unloading vessels of coal the coal has for the most part been hoisted from the hold over the bulwarks and dumped upon the wharf or upon the coal previously dumped; or, if the chutes were used, such chutes were fixed; nor, so far as I am aware, has a movable chute ever been known or used by which the coal could be received from the vessel at any point in the wharf and be screened and delivered to the cart.

Substitute "C," Sep. 22, '76.*

158

My invention consists of a movable apparatus of such height and proportions as to receive the coal from the bucket by which it is hoisted from the vessel without such fall as would break the coal. It is provided with screens for the purpose of separating the fine or dust portions from the coarser in their downward passage, and it is made to deliver the coal thus screened to the carts by which it is removed from the wharf.

By this [means]‡ apparatus* I am able to save repeated handlings and consequent expense, the breakage of the coal, and the apparatus can be changed from one point to another where the vessel may be placed.

There are further and subordinate objects to be secured by my invention, and the details devised for

Sep. 22, '76.* these purposes will be set forth more fully hereafter.

In the drawings—

Also amend the first claim (amended) by inserting after the word

[* In red ink in copy.]
[‡ Word enclosed in brackets erased with red ink in copy.]
[Matter enclosed between rules erased with red ink in copy.]

"carts" the words "said apparatus being made movable as and for the purposes set forth."

Respectfully, &c., MARTIN R. ROBERTS,
By ELLIS SPEAR, *His Attorney.*

Washington, D. C., August 22nd, 1876.

Endorsed: 8754. Amendment, Aug. 23, '76. U. S. Patent Office, Aug. 23, 1876.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *Aug. 24th*, 1876.

Martin R. Roberts. Coal screens and chutes. July 10, 1876.

The first claim is regarded as met by patents to Wm. Sparks, No. 49632, Sept. 12, 1865, and No. 96391, Nov. 5, 1869, wire
159 working screens & sieves. The apparatuses of these patents are expressly therein "made movable," but as no means are provided to facilitate their removal from place to place the following amendments of the first claim is suggested:

After "said apparatus being" insert "provided with means for facilitating changes of its position" or the like.

The apparatus may on such or equivalent amendment be allowed.

STOCKING, *Ex'r.*

Endorsed: 8754. Rej., Aug. 24, '76.

Memorandum in Roberts' case.—The structure made by Roberts is adapted to receive the coal from the vessel, screen it, and deliver it to the carts, and is so organized as to be portable. This idea Roberts first conceived and reduced to practice and set forth in his patent. In neither Sparks' patent nor in any other prior to Sparks is there any hint of this idea. The utility of the improvement is manifest, for the apparatus, after discharging one vessel, can with little trouble and in a few minutes be changed to another certainly much more easily, as every one familiar with vessels knows, than a ship could be hauled to another place at the wharf. This advantage is secured not only by the trucks, but by the general organization of the machine. The precise point is that Roberts has made a portable machine, as no one before had done. Any structure like the Sparks would be movable, as a house, by sufficient force, but could not be called in any ordinary or proper sense of the term portable.

160 Hon. Comm'r of Patents.

SIR: I hereby amend my application for patent for coal screen & chutes (reissue), filed July 10th, by inserting before the word "combined," first claim, in the first line, the word "portable," and in next to the last line erase the words "made movable" and insert the words "constructed and arranged substantially as described."

Respectfully, &c., MARTIN R. ROBERTS,
By ELLIS SPEAR, *His Att'y.*

Sept. 8th, '76.—Approved.

R. H. DUELL, *Com.*

Recommended as a special amendment.

V. D. STOCKBRIDGE,
Ex'r-in-chief.

Endorsed: 8754. Amendment, Sep. 22, '76. U. S. Patent Office, Sep. 9, 1876.

Hon. Comm'r of Patents.

SIR: I hereby amend my application for patent for coal screens & chutes, filed July 10, 1876 (reissue), by erasing the statement of invention, beginning with the words "My invention consists of a movable," &c., down to the words "By this means," &c. (which latter word (means) strike out and substitute therefor "apparatus"), and substituting therefor the following:

"C." Insert on page 2 of am'd't of Aug. 23, '76.* "My invention consists of a portable apparatus for receiving coal from the bucket by which it is hoisted from the hold of a ship and for screening and delivering it to carts on the wharf, said apparatus being
161 adapted for ready removal from place to place when required."

Also by inserting the word "improved" before the word "details," in the paragraph beginning with the words "There are further and subordinate objects," &c.

Respectfully, &c., MARTIN R. ROBERTS,
By ELLIS SPEAR, *His Attorney.*

Sept. 22d, '76.

Endorsed: 8754. Amendment, Sep. 22, '76. U. S. Patent Office, Sep. 22, 1876.

Room No. 103.

8754.

DEPARTMENT OF THE INTERIOR,
U. S. PATENT OFFICE,
WASHINGTON, D. C., *Sept. 22d*, 1876.

Martin R. Roberts. Coal screen & chute. Reissue. July 10, 1876.

This application, amended as recommended by a member of the honorable board of appeals, is returned to the board.

To prevent any misapprehension now or hereafter it is stated that the examiner still regards the claim as met by the references, as, should Sparks apply for reissue, he might of right draw the same claim.

S. W. STOCKING, *Examiner.*

Endorsed: 8754. Letter, Sep. 22, '76.

[* In red ink in copy.]

162 1876. Reissue. No. 7341.

Martin R. Roberts,
Of San Francisco,
County of San Francisco,
State of California.
Coal screens and chutes.
Rec'd July 10, 1876.
Petition, " "
Affidavit, " "
Specification, " "
Drawing, " "
Abstract of title, " "
Reissue old patent, No. 6211, Jan'y 5, 1875.
Cert. dep., 830, July 10, 1876.
Cash, ——.
Examined Sept. 29, '76. Board.
Issue, Sept. 30 of '76. M. D. Peck.
Patented June 17, 1873.
Reissue, Jan. 5, 1875.
Reissued Oct. 10, 1876.
Circular, Sept. 30, 1876.
Dewy and Co., San Francisco, Cal.
Ellis Spear.

163 1876.

Contents.

Application papers.
1. Letter, July 14, '76.
2. Am'd't, July 18, '76.
3. Letter, July 20, '76.
4. Old patent to Spear, Aug. 10, '76.
5. Am'd't, Aug. 23, '76.
6. Rejec., Aug. 24, '76.
7. App'l to b'd, Sept. 5th, '76.
8. Ex'r's answer, Sept. 8, '76.
9. Am'd't, Sept. 22, '76.
10. Am'd't, Sep. 22, '76.
11. Returned to b'd Sept. 22, '76.
12. Sept. 29, '76, ex'r reversed.
13. Examined Sep. 29, '76,
14. By board.
15.
16.——
17.
18.
J. B. B.: A. C. W.
Title: Improvement in coal screens & chutes.

M. R. ROBERTS.

COAL-SCREENS AND CHUTES.

No. 7,341. Reissued Oct. 10, 1876.

Fig 1

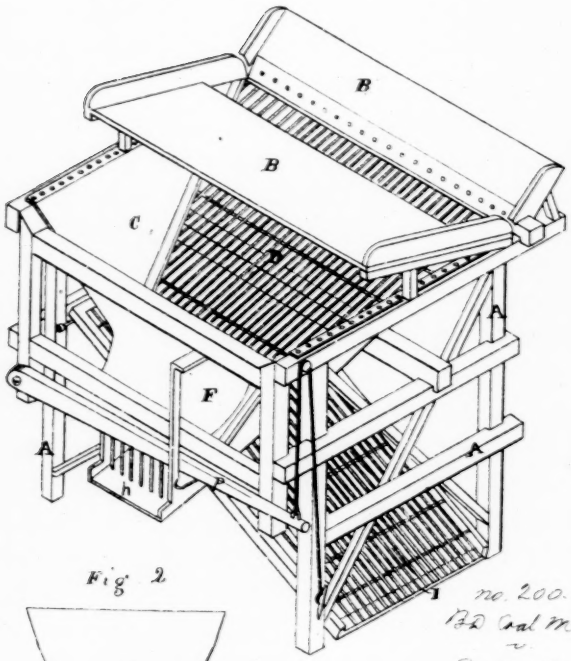
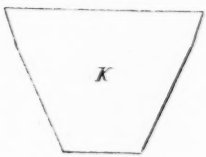


Fig 2



no. 200.
B2 Coal M. Co
v.
Excelsior Coal Co
p. 164

Witnesses
Jno L. Boone
Chas G. Page

Inventor
Martin R Roberts
by Dewey & Co
Attys

165 UNITED STATES PATENT OFFICE.

MARTIN R. ROBERTS, of San Francisco, California.

Improvement in Coal Screens and Chutes.

Specification forming part of Letters Patent No. 140,077, dated June 17, 1873; Reissue No. 6211, dated January 5, 1875; Reissue No. 7341, dated October 10, 1876; application filed July 10, 1876.

To all whom it may concern:

Be it known that I, Martin R. Roberts, of the city and county of San Francisco, State of California, have invented certain new and useful improvements in a combined portable hopper, chute, and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art to which it most nearly appertains to make and use my said invention without further invention or experiment.

Previous to my invention, in unloading vessels of coal the coal has for the most part been hoisted from the hold over the bulwarks and dumped upon the wharf or upon the coal previously dumped, or, if chutes were used, such chutes were fixed; nor, so far as I am aware, has a movable chute ever been known or used by which the coal could be received from the vessel at any point in the wharf and be screened and delivered to the cart.

My invention consists of a portable apparatus for receiving coal from the bucket by which it is hoisted from the hold of a ship and for screening and delivering it to carts on the wharf, said apparatus being adapted for ready removal from place to place when required.

166 By this apparatus I am able to save repeated handlings and consequent expense and the breakage of the coal, and the apparatus can be changed from one point to another where the vessels may be placed.

There are further and subordinate objects to be secured by my invention, and the improved details devised for these purposes will be set forth more fully hereafter.

(Here follows diagram marked p. 164.)

In the drawings A A represents a strong frame which is properly stayed and braced so as to withstand the concussions to which it will be subjected. At one side of the top of this frame I secure two boards B B' at an obtuse angle to each other, but leave their lower ends separated so as to provide a space, C, between them for the purpose hereinafter described. These boards form what I call the hopper. The board B' forms an extension to one side, D, of the large reservoir O, which is located in the body of the frame below

the hopper. This side D of the large reservoir slopes toward the opposite side of the frame, and is constructed of parallel wires, secured at short distances apart, so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir, and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted toward its lower end, and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and reservoir until it is desired to allow it to pass from the chute into the cart or other vehicle. An in-
167 dependent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame A A, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it on account of not being small enough to pass through the meshes will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of these meshes can be varied according to the substance to be cleaned and the number and quality of the grades into which it is desired to separate the substance being discharged.

The frame A A will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf in order to be placed in position to receive the discharging cargo of different ships, but when moving it from one wharf to another I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any vehicle.

The hopper B B′ is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. The hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall and is thereby prevented from being broken and pulverized. The outlet of the hopper B B′ extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D and has to pass its
168 entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper B B′ make it a success in receiving the contents of the bucket, by which the coal is hoisted from the hold of the vessel, a result which, I believe, was never before accomplished by any hopper.

By placing the reservoir O in its peculiar position and making it large several advantages are obtained. Among others a large screening surface is obtained. The gate *h* is sufficiently high from

the wharf to allow vehicles to be placed so as to receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf, and the reservoir O is large enough to serve as a store-room so that in case of temporary delay in the vehicle carrying the coal to the yards the work of unloading the ship of other vessel can proceed without the necessity of piling the coal upon the wharf.

When it is not desired to screen the article or substance to be unloaded a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

The gate or cut-off which I use consists of a lever-bar, μ, which has one end pivoted to the frame so that it will extend transversely across above the end of the chute. Metal teeth h extend downward across the mouth of the chute so as to bar the entrance. When the cart is in position beneath the chute the free end of the lever is raised so as to clear the teeth from the mouth of the chute and allow the substance to pass through by its gravity into the cart.

From the practical success which has attended my invention I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship.

By this arrangement coal can be discharged from ships, screened, and loaded into carts, not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped into this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal pile.

Having described my invention, what I claim and desire to secure by letters patent is—

1. A portable combined coal receiving and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water craft and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described.

2. The receiving hopper B B', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate h, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above described.

3. The metal blank or false bottom K, in combination with the receiving hopper B B', reservoir O, chute F, and gate h, substantially as and for the purpose above described.

4. The combination of the hopper B B' for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate h, all constructed to operate substantially as and for the purpose set forth.

5. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially as is herein set forth.

MARTIN R. ROBERTS.

Witnesses:

J. L. BOONE.
CHAS. G. PAGE.

Endorsed: Opened and refiled Sept. 10, 1890. L. S. B. Sawyer, clerk, by F. D. Monckton, deputy clerk. (10247. Pltf's Ex. E.)

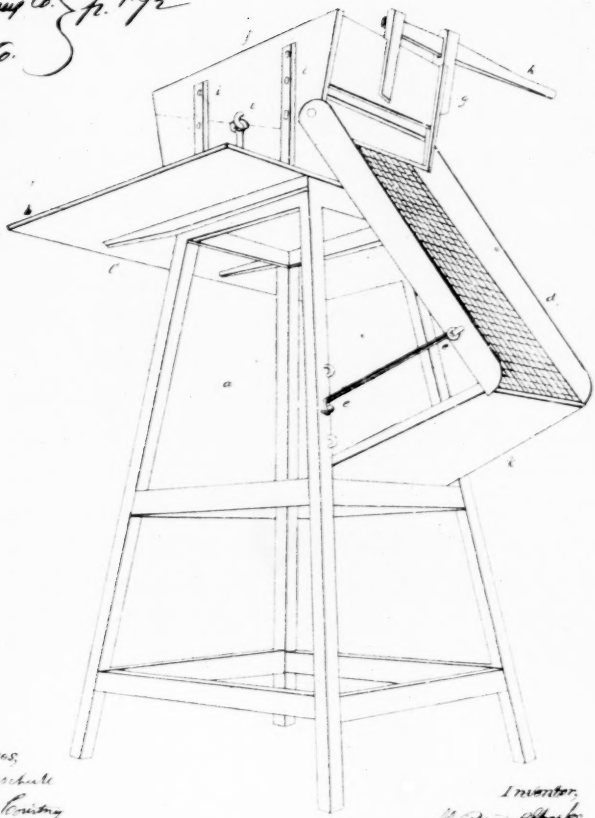
171 (Mr. Estee, on behalf of the defendant, now offered in evidence patent issued to William Sparks, No. 49632, dated September 12, 1885, for coal screens, which was read to the jury, introduced in evidence, and marked "Defendant's Exhibit F.")

W. Sparks,

Coal Screen.

No 49,932. Patented Sep. 12, 1865.

No. 200.
D.D. Coal Mining Co. } p. 1/2
vs
Excelsior Coal Co.



Witnesses,
M. Marshall
Thomas Couston

Inventor,
William Sparks

173 UNITED STATES PATENT OFFICE.

WILLIAM SPARKS, of New York, N. Y.

Coal-screen.

Specification forming part of Letters Patent No. 49932, dated September 12, 1865; antedated September 6, 1865.

To all whom it may concern:

Be it known that I, William Sparks, of the city and State of New York, have invented, made, and applied to use a certain new and improved coal-screen; and I do hereby declare the following to be a full, clear, and exact description of said invention, reference being had to the annexed drawing, making a part of this specification, wherein I have represented a perspective view of the invention I have made complete and ready for use.

The nature and object of my invention is to enable the coal-dealer to deliver the coal to his customers directly from the dock as perfectly screened as when it is hauled to and screened at the yard, by which means he is enabled to reduce the cost of his coal to himself and the price of the same to his customers.

The nature of my invention consists of a frame-work, *a*, (see drawing,)

(Here follows diagram marked p. 172.)

constructed of any good, sound timber or joist, about four by four inches square, the four posts at the corners of said frame being six feet apart at the bottom and three feet at the top, and nine feet, or thereabout, high. On the top of the frame-work *a* is a platform, *b*, projecting two feet around three sides of the frame, supported, as shown at *c*, by pieces attached to the frame at the top. An ordinary screen, *d*, attached to the frame is upon the side of the frame over which the platform *b* does not project, supported by a long hook and staple from the post or leg of the frame-work *a* to the screen *d* at *e e*. To the lower end of the screen *d* is a kind of apron, to convey the dust from the coal that passes through the screen *d* to the ground under the frame-work.

Upon the top of the platform *b* is a feeding box or hopper, *f*, into which the coal is emptied from the tub in which it is hoisted out of the vessel at the dock, for the purpose of graduating the quantity of coal passing over the screen *d* into the cart or other vehicle or receptacle by means of a sliding gate, *g*, worked by a lever, *h*, to increase or diminish the aperture in the in-feeding box *f* for the egress of the coal upon the screen *d*.

The feeding-box *f* is constructed about three feet square, two feet deep at the mouth or aperture of egress, and one foot at the opposite side of the same, as indicated by the dotted line on the feeding-box *f*. The feeding-box *f* is supported and secured upon the plat-

form *b* by means of four legs and hooks and staples, as shown at *i i i*.

Having completed the construction of my invention, I place it in a proper position for the reception of coal from the vessel or cars at the dock or depot, the cart or other vehicle being placed under the screen *d*. The driver of the cart or vehicle takes his place upon the top of the platform *b* to receive the coal as it is hoisted from the vessel or car, he empties it into the feeding box or hopper *f*, and by means of the lever *h*, acting upon the sliding gate *g*, regulates the egress of coal out of the feeding-box *f* upon the screen in such a manner that the dust of the coal will be entirely separated from the coal and deposited upon the ground or into a receptacle under the frame-work *a*. The cost of transporting and screening the coal at the yard is thus saved and the price of one of the most important articles of universal consumption materially reduced.

I do not claim the different parts composing my improved coal-screen, separately considered, nor the arrangement of the inclined screen, which is used in every coal-yard, and the hopper or feeding-box *f*, the bottom of which is also inclined, but not so that the impact of the stream of coal shall be perpendicular, or nearly so, to the said screen, as set forth in claim of Samuel Boothe's patent, dated October 20, 1859; but

What I do claim as my invention, and desire to secure by letters patent, is—

The combination of the screen *d* and gate *g*, at the upper end of the said screen, with the frame-work *a* and the elevated platform *b*, in the manner and for the purpose set forth.

WM. SPARKS.

Witnesses:

JOHN MERCHUTT.
THOMAS COURTNEY.
W. WHEELWRIGHT.

174 (Mr. Estee, on behalf of the defendant, offered in evidence letters patent granted to William Sparks, November 16, 1869, antedated November 5th, 1869, No. 96991, for improvement in coal screens, which was read by counsel to the jury, introduced in evidence, and marked "Defendant's Exhibit G.")

No 200
B. D. Coal
Mining Co
&
Excelsior
Coal Co

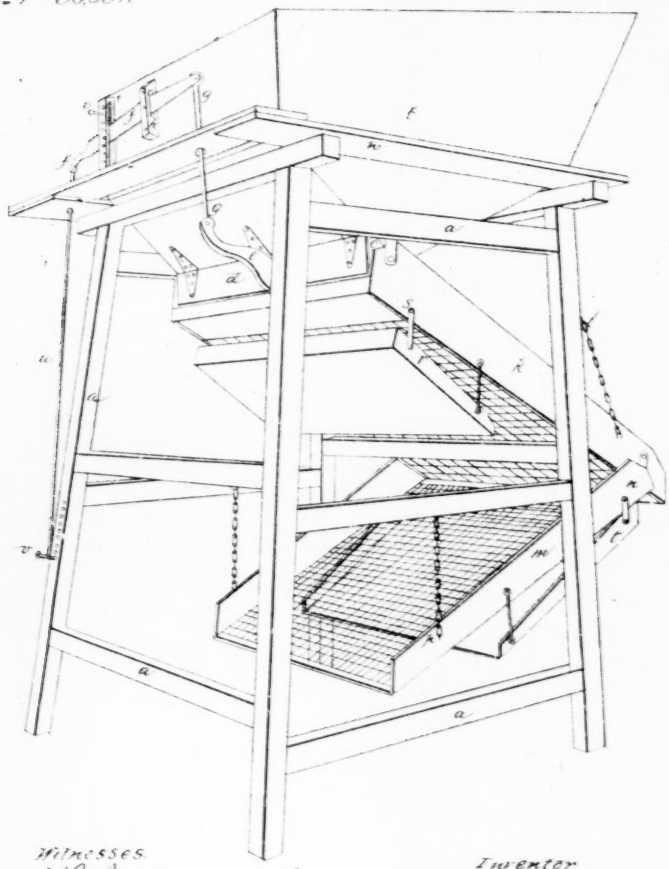
p. 175

W. Sparks.

Coal Screen.

No 96,991.

Patented Nov 16, 1869



Witnesses
J. Mortuenhaft
E. S. Gaylor

Inventor
William Sparks

176 UNITED STATES PATENT OFFICE.

WILLIAM SPARKS, of New York, N. Y.

Letters Patent No. 96991, dated November 16, 1869; antedated November 5, 1869.

Coal-screen.

The schedule referred to in these letters patent and making part of the same.

To all whom it may concern:

Be it known that I, William Sparks, of the city of New York, in the county and State of New York, have invented and applied to use certain new and useful improvements in the "new and improved coal-screen," patented September 6, 1865; and I do hereby declare that the following is a full and exact description of the same.

My improvements consist, first, in altering the form of the hopper *b*, so as to render the whole machine more compact, by setting the screens more directly under the hopper *b*, and screening several kinds of coal at the same time; and, secondly, by rendering the whole operation of screening coal more inoffensive on account of dust.

To enable others skilled in the art to make and use my improvements, I will proceed to describe thir construction, application, and operation, reference being had to the accompanying drawings, and to the letters of reference thereon.

(Here follows diagram marked p. 175.)

I construct my frame-work, *a*, of any suitable material, to support the hopper *b* in its proper position.

When more than one, or a series of hoppers, are to be used, the frame-work is to be constructed accordingly.

The general form of the hopper *b* is to terminate with an angle at the lowest extremity, and at that point is situated the mouth or aperture of egress for the coal to the screen, as shown at *c*.

The coal may be checked or regulated in its passage to the screen by adjusting the inclination of the bottom of the hopper *b*, but I generally use a gate or screening-regulator *d* for that purpose, operated by the brake *e*, in connection with the hand-lever *f*, by the connecting rod or pitman *g*, the lever *f* acting on a piv ot in a slot, as shown at *h*.

The rack *i*, as represented, is to retain the gate or screening-regulator *d*, in any desired position, according to the size of the coal.

The form of the hopper *b* is shown. The sides are generally perpendicular, and about four feet apart, but the dimensions must be regulated by the circumstances.

The mouth or aperture of egress is about ten inches wide and four feet, or thereabouts, long.

The gate or screening-regulator *d* is secured in its place, to the bottom of the hopper *b*, by means of strong iron strap-hinges, or otherwise, the object being merely to check or prevent the too rapid descent of the coal upon the screen, and is regulated by the hand-lever *f*, as described above.

The screen *k* is constructed in the usual manner, except that the wire does not extend the whole length, but begins at about eighteen inches from the upper end, which part is there lined with sheet-iron, for the coal to strike as it falls from the hopper.

The sides of the screen are six or eight inches wide, tapering somewhat from the upper end, and the width to suit the mouth or aperture of egress of the hopper *b*, as shown at *e*.

The wire for the screen *k* may be from one-fourth of an inch to three-eighths, or as shall seem most suitable for the size of coal to be screened.

The screen *k* is suspended in its place, at *e*, in any suitable manner, or by means of iron plates and bolts and chains with hooks, so that the inclination of the screen may be varied by the links, as represented at *l*.

The screen *m* is for the purpose of separating the still smaller coal from the dust, as it falls through the screen *k*, and requires to be about four feet long, the screen *k* being about six, or thereabouts.

The screen *m* is suspended from the lower end of the screen *k*, inclining invertedly, and by means precisely similar, as represented at *n p*.

Under the screen *k* is suspended an apron or conductor, *r*, for the purpose of conveying the dust or screenings properly to the screen *m*.

The apron or conductor is constructed of sheet-iron, or of any other suitable material, expanding across the screen, and extending two or three feet, or as may best serve the purpose intended.

An apron or conductor is also attached to the screen *m*, in all respects similar to the one just described, both of which are fixed in their places and positions, as represented at *s k n m*, by plates and small screw-bolts, or otherwise, as may be desired.

Another improvement in the "new and improved coal-screen" is to line or cover the whole frame-work *a* with canvas or other suitable material, so as to enclose all the screens, except the necessary opening to deliver the coal into the cart, vehicle, or other receptacle, for the purpose of confining the dust.

My improvements in "the new and improved coal-screen," which are herein described, enable me to screen coal in a more thorough manner, and the use of the additional screen *m* still more diminishes the cost of coal.

To use my improvements, I place the machine in a proper position, near the vessel, car, or way, leading to the same, and having closed the mouth or aperture of egress *e*, by elevating the hand-lever *f*, by means of the rod *u*, or otherwise, and securing it with

the pin *o* in the rack *i*, or in a similar manner with the pin, as shown at *e*, I proceed to hoist or turn the coal into the hopper *b* as each cart or vehicle arrives, or other receptacle for the coal is ready.

I open the gate *d* by means of the hand-lever *f*, if I am upon the platform *w*, and by the rod *u*, if I am down on the ground, and having ascertained the proper gauge of the mouth or aperture of egress *c*, according to the size of the coal to be screened, I secure the gate *d* in that position, as before described, and close it when the cart or vehicle is loaded.

When I use my machine in a coal-yard, I screen the coal into the cart, using any ordinary hoisting apparatus, for the purpose of turning the coal into the hopper, from which the cart receives its load. The hopper *b* being of such dimensions as to hold several tons of coal, I continue the filling into the hopper, while the carts are gone, so that they are seldom or never kept waiting, thus effecting a great saving of time, as will be obvious, and besides screening and loading with one shovelling, instead of two, which will more than compensate for the hoisting, and another result is that the "pea" coal is separated from the dust, and is thus made valuable.

What I claim as my invention, and desire to secure by letters patent, is—

The screen *k*, the hopper *b*, with a converging bottom, and appendages *d*, *e*, *f*, *g*, *h*, *i*, and *o*, combined, constructed, and operating in the manner described, or their equivalents.

WILLIAM SPARKS.

Witnesses:

J. M. MERCHUTT.
E. S. GAYLOR.

177 (Mr. Estee, on behalf of the defendant, now offered in evidence bound volume of the library of the office of the commissioner of the descriptions and drawings in the matter of the English letters patent granted to Samuel Plimsoll on August 25, 1866, being numbered 2193, for improvements in the means and apparatus for facilitating and perfecting the unloading of coals and other goods from railway wagons.

Marked "Defendant's Exhibit II." There being no objections, said patent was considered as read.)

178 A. D. 1866, 25th August. No. 2193.

Unloading Coals, &c.

Letters patent to Samuel Plimsoll, of Whitley Wood Hall, Sheffield, in the county of York, gentleman, for the invention of "improvements in the means and apparatus for facilitating and perfecting the unloading of coals and other goods from railway wagons."

Sealed the 22nd day of February, 1867, and dated the 25th August, 1866.

Specification in pursuance of the conditions of the letters patent filed by the said Samuel Plimsoll in the Great Seal Patent Office on the 25th February, 1867.

To all to whom these presents shall come, I, Samuel Plimsoll, of Whiteley Wood Hall, Sheffield, in the county of York, gentleman, send greeting:

Whereas her most excellent majesty Queen Victoria, by her letters patent bearing date the twenty-fifth day of August, in the year of our Lord one thousand eight hundred and sixty-six, in the thirtieth year of her reign, did, for herself, her heirs and successors, give and grant unto me, the said Samuel Plimsoll, her special license that I, the said Samuel Plimsoll, my executors, administrators, and assigns, or such others as I, the said Samuel Plimsoll, my executors, administrators, and assigns, should at any time agree with, and *know* others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, and exercise and vend within the United Kingdom of Great Britain and Ireland, the Channel islands, and Isle of Man an inven-
179 tion for "improvements in the means and apparatus for facilitating and perfecting the unloading of coals and other goods from railway wagons," upon the condition (amongst others) that I, the said Samuel Plimsoll, my executors or administrators, by an instrument in writing under my or their or one of their hands and seals, should particularly describe and ascertain the nature of the said invention and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said letters patent:

Now, know ye that I, the said Samuel Plimsoll, do hereby declare the nature of my said invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement, reference being had to the sheet of drawings hereunto annexed and to the letters and figures marked thereon (that is to say):

I construct a series of sidings parallel to each other or otherwise, but by preference parallel. At the point of unloading each siding may be set apart for the use of one kind of coal. Under the end of the sidings I construct a weighing bench, which extends through-

out the whole range and is of such height as to be even with the bottoms of the vans, and upon this bench I place the weighing machines, rising from the upper parts of which are chutes with screens. These chutes reach upwards to the rails, while the sides are continued upwards to nearly level with the bottom of the railway trucks. By this means the contents of the trucks are made to glide gently from the trucks into the sacks without breakage. The flow of the coal into the sacks can be suspended at pleasure. I remove the empty railway wagons by means of a traverser at the rail-delivery
180 end of the sidings, so that the unloading from the sidings can be carried on at the same place continuously, thus avoiding the inconvenience of moving about from one truck to another which attends siding work as usually carried on. The sidings above named can be supplied with pull-trucks from the main line either by points and branches, or when the space is valuable or the shape of the ground necessitates it they can be parallel their whole length and supplied by a traverser as well as cleared by a traverser. Thus my improvements consist in the arrangement of a number of short lines of railway or sidings parallel or not with the branch of the main line by which the goods are to arrive, each of which is to receive two, three, four, or more trucks loaded with coals or other goods in bulk, such short lines of rails having at or near the one end the apparatus for receiving the coals, to which point the trucks are brought in succession to be unloaded. At each end of these short lines of rails (when they are parallel) are disposed lines of rails transversely thereto and at a level, on which transverse rails are placed trasversing trucks on which the coal trucks are run in order that they may be traversed. The traversing trucks are provided with rails to receive the coal trucks. By this means the loaded trucks may be readily traversed from the main line of railway by which they are brought to any of the short lines of unloading rails. Having been unloaded, the trucks are run off at the opposite end of the short lines of unloading rails and transferred to the main line by the traversing truck at that end. Instead of a traverser for bringing on the loaded trucks they may enter from the main line by points and crossings, as usual. By this arrangement of the unloading lines access is at all times provided for the loaded trucks to any of the short lines of rails and unloading points,
181 as also egress therefrom for the unloaded trucks. Moreover, a succession or number of loaded trucks may thus be always at hand in readiness for the men who are delivering the coals. The points of delivery I arrange near one end of the short lines of rails—that is to say, the end furthest from that by which the loaded trucks are brought on. Coal trucks usually deliver at the bottom by making it in two halves, hinged, which are let go when desired. When so released the coals fall into a receptacle or hopper below, but which is of no great depth or capacity, to make up for which I raise inclined surfaces outside of the rails and on each side, which I carry up to a sufficient height and at an angle of about forty-five degrees, more or less. These inclined surfaces form, as it were, continuations of the hopper sides. The truck bottom being in two

parts hinged at the middle, when released, impart a tendency in the coals to run off towards each side which the raised inclines circumscribe, and direct the coals back between the lines of rails under the truck. This is more especially the case if the discharge of the loaded truck is begun when the hopper is partially filled and so that the bottom flaps of the truck cannot fall wide open at once, but rest on the coal previously discharged, and remaining in the hopper by this means the coals receive little or no concussion when delivered from the truck, and are therefore not subject to the breakage usually occasioned in the ordinary method of delivering coals from railway trucks. From the hopper between the rails the coals are drawn off by one or more inclined chutes with regulating sluices into sacks placed on machines in which they are weighed and delivered. The inclined chutes are furnished with screen bottoms,
but which, instead of consisting of parallel bars as hereto-
182 fore, I make with a series of perforations which break joint with each other (so to speak) and prevent the run of small coal or dust down the chute, as no continuous surface is presented for its traverse as in the case in screens made of parallel bars. By the above means coals or other goods in bulk may be drawn off in a continuous stream from trucks and without concussion, and therefore without break or deterioration.

Description of Drawings.

(Here follows diagram marked p. 185.)

In the annexed drawings, A A shows the level of the line of railway on which the loaded trucks arrive, and line B B the level on which the carts or wagons are disposed to receive the coals, which may be a natural consequence of the surface of the ground, or the arrival line may be inclined upwards to the required height above the cart road, or such road may be lowered below the line of the railway. Figure 1 represents an end elevation or transverse view of the siding above the line B B, while figure 2 represents a longitudinal section of the same. Figure 3 represents a plan of the sidings M, arranged parallel to each other and having traversing rails C C D D at each end of such sidings, E being the main and arrival line. The rear of the sidings may rest on the ground level or otherwise, but in front I support the lines on brick pillars or timbers *a a*, the rails being supported therefrom on timbers *b*, and suitably planked over as at *f f* to form a platform. 1 2 3, figure 2, represent loaded trucks as they arrive in succession on some siding. Immediately under truck 3 is the delivery hopper or chute F for the coals or other goods in bulk, and in which they fall when the flap bottoms of the trucks are released. This chute is made of the width between the rails, and in order to conduct and direct the
coals to such chute the platform on each side of the rails is in-
183 clined and raised, as clearly shown at *b' b'*, in figure 1 and 2, forming, as it were, a continuation of the hopper sides.

The lines are placed sufficiently wide apart to permit of a plat, *a*, at top of the inclines *b'*, for the workmen walking upon. Instead of a flat top, *d*, as shown, the inclines may be less steep, as at X, figure 1, which will serve to walk upon and also to conduct the coals. The front or empty traversing rails D D are supported on pillars, as seen in the right in figure 2, in such manner as to permit of the carts and wagons backing to the weighing machine G. One of the traversing trucks, H, is represented in figure 1, with an empty truck shown on its rails *g g*, which are turned up at the ends, as seen, to stop the progress of the empty truck. This traversing truck is also shown in the plans, figure 3, and will be readily understood without any special description. A like traversing truck is also disposed on the loaded traversing line C C when such is used for bringing on the loaded trucks, but without turned rails, the loaded truck coming out at one side and passing off at the other. The inclined hopper or chute F is usually kept full of coals and is furnished with a sluice, *h*, by which they are drawn off into the sack *i*. By keeping chute F filled—and it may be partly up the incline *b'*, covered with the coals or goods in bulk—the flaps *l l* of the truck will rest thereon when released and will prevent any fall of the coals when passing out of the trucks, at same time keeping up a continuous supply of such goods as they are drawn away from below. The number of trucks accommodated on each siding M will, of course, depend upon their length, but should be several, say seven or eight, which come on loaded at one end and pass off empty at the other, and are then traversed to the down line L of the main line of rails, as before described.

184 An ample stock of coals or other goods being always on hand, no delay need occur in the delivery or waste of men's time, and no confusion or difficulty in the arrival of the full or departure of the empty trucks; therefore great facilities will exist for the uniform and convenient transference of a large quantity of goods arriving by a railway, although confined to a comparatively small space. The different sidings may, of course, be confined each to a particular kind of coals or goods, if desired, as will be readily understood.

Figure 4 represents an enlarged view and figure 5 a section of the bottom F' of the chute F, which is simply a casting with the apertures for the small coal and dust to pass through arranged as seen, whereby any continuous surface is avoided on which the small stuff can run to the bottom, as usual.

Having thus described the nature of my invention and the manner of performing the same, I declare that what I claim as the invention to be protected by the hereinbefore in part recited letters patent is, the general arrangement of parts hereinbefore described and illustrated in the drawings hereunto annexed, for facilitating and protecting the unloading of coals and other goods from railway wagons.

I also claim the improved screen bottom F' applied to the chute F, as and for the purposes hereinbefore described.

In witness whereof I, the said Samuel Plimsoll, have hereunto set my hand and seal this twenty-third day of February, in the year of our Lord one thousand eight hundred and sixty-seven.

SAMUEL PLIMSOLL. [L. S.]

186 (Counsel for defendant also offered in evidence copy of work known as "Engineering," published April 26, 1867, and particularly page 417 of that work, which is a perspective view of said Plimsoll patent with a description of the various devices composing it. The reading to the jury was waived. Introduced in evidence and marked "Defendant's Exhibit I.")

(Counsel for defendant also offered in evidence a model of the second Sparks patent, marked "Defendant's Exhibit J.")

Examination-in-chief of BENJAMIN B. JONES, a witness called on behalf of the defendant:

The WITNESS: I reside in Martinez, California; am fifty-five years old; am a coal miner; have followed that occupation for twenty-six years; have been engaged in that business in Contra Costa county, California; Oregon, and in the State of Washington; was employed by the Black Diamond Coal Company in Contra Costa county. I was employed there by that company first twenty-two years ago—from 1861 up to 1885 or 1886. I was employed at the Black Diamond mine even before the Black Diamond Coal Company bought it. I am not especially engaged for the Black Diamond Coal Company now; have no regular employment for them. I go out for them and examine mines when they so desire. I recognize the drawing handed me; saw the device of which this is a drawing at the Black Diamond Coal Company's mine, Contra Costa county, from 1862 up to 1873.

187 (Said drawing was introduced in evidence by counsel for defendant and marked "Defendant's Exhibit K.")

Describing the drawing, the witness states:

This is a car coming off from the tunnel loaded with coal (indicating) and is in the act of dumping the coal down here into the hopper. There is a gate here (indicating) for the purpose of keeping it from coming down on the screen, so we could examine it and take the dirt and bone, and so forth, out of it before we let it out from the hopper here onto this screen. After seeing that everything is clear here of whatever there will be, there will be five or six tons, probably—it depends upon the size of the hopper—and let go out of here down onto the screen, and there we have another gate here (indicating), and after looking over the coal here on the screen and seeing that it screens readily, and that the fine coal goes into the fine-coal bunker. We had about fifteen wagons there in 1862 to carry the coal down to New York Landing, sixteen miles. Some of them would hold six tons—six-horse teams. Some of them would load from the bunkers here and also from this fine-coal bunker, and the chute would let it right out.

Q. I understand you to say that this (indicating the box at the top of the machine) represents a hopper into which coal was dumped from a car.

A. Yes, sir; the sides of the portion of the device marked "chute" and "screen" were probably from two and a half to three and a half feet high. There were iron bars there forming the screen—about one inch round-iron bars, forming a screen of about three-quarters of an inch apertures. That part marked "fine-coal chute" was also a reservoir for the fine coal, to receive it, and if we
188 didn't want the screenings we let that fill up and let this coal run right through, just as they mine it, and then it would not make fine coal. The means for preventing the coal from passing from this portion which is marked "chute" and "screen" into the bunker beyond was a gate which worked up and down. Some had it that way, and others again would open on the lower side. This gate would close and prevent the coal from running out through the gate. There was a means or device at the end of what you call the "chute" and "screen" to keep the coal from passing beyond. There was a gate there. This gate was at the bottom of the screen. There was also a fine-coal chute, by which you could retain the coal in there or prevent it from passing out, and there was a gate there (indicating). You could load it out or let it go down there into this bunker (indicating), which you have styled a fine-coal bunker. The coal which passed over the chute or screen went into the coarse-coal bunker. There was a device or appliance, which was a gate, which control-ed the flow of the coal into the bunker. This control was made by means of a gate. There was also a chute (indicating) where cars came in, in 1865 and prior to that time, and coal was loaded into either carts or wagons. These lower chutes work on hinges and a bar and a pulley and rope and lever, and then they raised them up; and, suppose the chute had a fall of thirty degrees, they would raise them up to about thirty-three degrees to counteract and shut the coal back.

Cross-examination:

The WITNESS: No; I am not regularly employed by the Black Diamond Coal Company, but I am employed by that company occasionally. I am now in the real-estate business on Puget sound.
I do not live on Puget sound, for my family is living here in
189 Martinez. I examine mines there—coal mines—and do prospecting for coal mines in that locality. I have lived there about ten years. Most of my business is there, but my family is down here. They thought the climate was better for them. I am up there most of the time. I haven't done much of anything for the Black Diamond Coal Company for the last four and a half years. Previous to that I have opened mines for them and looked after them and prospected for a mine and discovered it. That is the last job I done for them; and I left there, I think, in February, four years ago or five years ago—that is, I left Green River, back of Seattle about thirty-three miles. I have visited a good many coal mines during my time; most every one on the coast. All of them

have some device for handling the coal that they take out of the mines, and those machines are generally of about the same character. There are little improvements—little changes—in the character of the mechanism used by the different coal companies. The object is the same. They all have hoppers, which is to facilitate the handling of coal cheaply. Every superintendent, of course, tries to devise the best and cheapest way to do that. I don't remember how high that machine was at the Black Diamond Coal Company's mine. I built two of them, or, at least, I looked after and superintended the building of two of them. It might be thirty feet high and it might be forty. It was at least thirty feet high. I don't remember the size of the timbers employed in the structure, for I left Contra Costa county many years ago—that is, the mining portion of it; haven't seen the machines since. I see the plan of the machine that was in operation there right here (referring to Defendant's "Exhibit K"). I think the size of the timbers used was about twelve by fourteen. I don't know who made this plan. I first saw it this morning; saw it in Mr. Wagner's office. I gave an item as to how that drawing should be made.

190 Q. What do you mean by "an item"?

A. Well, a rough plan of it. I gave it to Mr. Wagner last Friday night, I believe. This is very nearly a reproduction of what I suggested; so near that I would not have wished to change it if they had asked me to do so, but they never asked me to do so. I never saw this plan until this morning. You could make this machine any width you want to, of course. I don't remember how wide it was. At that time we called them bunkers. I haven't got the measurement of the machine. The chute or screen was probably sixteen feet long. I don't remember exactly as to the length. It may have been twenty-five or thirty feet and it might not; have worked through a chute fifty feet long; don't know how near the bunker was to the hopper. A framework supported the screen or hopper. I can't tell you how high the upper end of the screen was; never measured it. I know it couldn't be over forty feet, and this (indicating on drawing) might be thirty feet high. I haven't got the measurement of the machine and I haven't refreshed my memory as to the height. In fact, I didn't know what I was coming down here for. I saw this plan here, and that brought back my memory, as far as the plan of the bunker was concerned. The hopper might hold six or eight or ten tons. The object of the gate was to stop the coal from running down when the bunker was empty. Coal is soft generally in the country, and particularly in California and Washington, and if not we would not have a gate there, and it would run down at once, and probably it would come down here (indicating) before stopping, and probably it would crush and make too much fine coal, and then another object was to let it go gradually, so as to have a good chance to screen as it came

191 down, and the coal all came down here (indicating). The coal would not stop on this screen but for the gate at the lower end. That machine was constructed strong, but it would wear out. Water dropping on a rock would gradually wear the

rock out. It would not tear it to pieces immediately, for the gate would stop it. If there was no gate, of course, it would knock the cart or horse or man that was with it at the lower end all to pieces, because it would come down with a rush. The gate had two purposes, namely, to assist in screening the coal on the screen and to protect the bunker as well. The gate regulates the screening of the coal on the screen. The gate don't screen the coal; the screen does that. The gate does this, as follows: You can open it a quarter or half open, and when the rush of coal comes down you can press it and regulate the coal in coming, so it comes down gradual in a stream. When you close the gate down you can't pass the coal over the screen; it remains there. The upper gate is not always open. That is the hopper there (indicating), and we look over there to see whether there isn't rock or bony coal or anything else that should not be there before we open the gate to let it come down onto the screen. If the hopper is empty and we come with a car-load of coal we close the gate before we dump that car, and then we sort it, and the car goes away and another one comes in its place. We don't open the upper gate unless the screen is clear and you are ready for it; then if the screen is clear we open that gate whenever we want the coal to run down on the screen. The coal in this hopper runs down, and finally runs into the bunker; then it runs as far as this gate and stops there. Sometimes we have a number
of car-loads of coal in the hopper. Our machine was
192 large enough to hold a number—possibly six cars. It probably would hold more. If there were several car-loads in the hopper and you opened the gate the coal would then run down on the screen and lodge against the lower gate, and the bottom of that screen would be covered with coal so far as the coal would run up on the screen. As to whether the coal would cover the screen would depend upon the size of the hopper, provided you run the amount in the hopper out, and the size of the gate. We had five or six machines up at the Black Diamond Coal Company's works. I don't remember whether a hopper full of coal would cover the screen fully or not; unless the hopper was equal to the size of the screen from top to bottom of course it would not; and if you don't want to let it go down half full you would wait until you got another load in the hopper and then let it all go down together. I never saw that machine moving around. I never moved it, but it could be moved. The machine used at the Black Diamond works was not a portable machine, it was a fixed machine, stationary, and yet a building of this kind could be moved easier than a brick building in this city here. This machine was not built to be portable. I couldn't say whether this machine was fully fifty feet long or not; it may have been for all I know. The upper end was on a lever with the tunnel. The bunker was at the lower end where we wanted to load it into cars or wagons. The machine was built on the side of a hill. The bunker was built as near the chute as could be, and the hopper was built as near as you could conveniently build it convenient to the mouth of the tunnel. It was built there for the purpose of handling the coal from the mouth of the tunnel

and some place at the bottom. The gate in the fine-coal
193 chute opened into the fine-coal bunker. The object of the fine-coal bunker was to load fine coal from and to store the fine coal in. We used the chute for flowing down right along. I have seen the machine operate without separating the fine from the coarse coal. When we wanted we could run the coal into the fine-coal bunker and close the gate. That is what the gate is for, and also for something else, namely, to divide the two bunkers from each other. The top gate was constructed to be raised up with a pulley or rope; it was supported by cleats inside; it run in between cleats. You could hoist this gate with a pulley very easily with a rope and tackle. We had a rope and tackle there, but it was worked also by a lever, with a hand lever and hinges and bolts. We had to build the gates strong, and they were lined with galvanized sheet iron. I don't remember how much one of those machines cost; it depended upon their capacity; some would take three thousand to construct and possibly some seven thousand dollars. There were four there in 1866.

Re-examination:

The WITNESS: Yes, sir; I believe that a machine that would hold three hundred tons of coarse coal and two hundred tons of fine coal would cost about three thousand dollars.

Examination-in-chief of CHARLES BURTON, a witness called on behalf of defendant:

The WITNESS: My business is hopper-tender at R. Dunsmuir & Son's; have been engaged there since 1878 or 1879 and from
194 that time on. I have been employed by Dunsmuir & Son and I am employed by them now. I did work one week for Charley Allen during that time. I know what is known as the Roberts coal screen. I have known it since back in 1875 or 1876 and I have worked them all the time.

Q. (Showing witness a model of that screen.) I now show you a model, Plaintiff's "Exhibit No. 2," and ask you if that is a correct model of the machine which you worked in 1878 and 1879 belonging to Captain Roberts.

A. Yes, sir; except that there was a gate at the lower end of the hopper. We couldn't screen coal unless we have something to stop it on top; it is impossible.

Cross-examination:

The WITNESS: Yes; I have been employed by Dunsmuir, the Wellington Coal Company, at their place on Pacific-street wharf. I have charge of the hoppers on the dock. They are a square hopper, the same as that there (pointing to Plaintiff's "Exhibit No. 2"). I am using three of plaintiff's machines, Captain Roberts' hopper. The coal is dumped into that hopper, and there is a gate on top that stops the coal, and a gate below—a gate at the lower end of the hopper. There are two gates, one at the top and one at

the bottom of the machine; a gate down below and a gate at the bottom of the hopper. There is a screen on each side of the machine, two screens; one screen runs one way and the other runs the other way.

195 Examination-in-chief of TAYLOR DASHE, a witness called on behalf of defendant:

The WITNESS: I am a coal-screen tender; have followed that business for thirteen or fourteen years. I am now working for Charles R. Allen. I know the coal screens ordinarily known as the Roberts screens; I have operated them. I first operated them about 1877 or 1878. Being now shown the model, Plaintiff's "Exhibit 2," I will state that it is the same screen that I operated in 1877 or 1878, only there is no ladder to it and no gate here—that is, no gate on top here; no gate there at the bottom of the hopper. There was one on the machines which I operated. I have been practically engaged in screening coal for thirteen years. You cannot screen coal without a gate at the bottom of the hopper "B B'."

Cross examination:

The WITNESS: Yes, sir; I have handled plaintiff's machine. I first operated one in 1877. This was done on the city front, on mission No. 1. I couldn't tell how many Roberts machines were in operation that time. We used one at that time on the wharf. I have seen Roberts machines every day. I first saw them pretty near a year before I commenced to work them in 1877. I am not positive about dates, but I think it was 1877. I was working for the Sierra Coal Company at that time, and we worked with some of these hoppers. The machines I worked had a gate between the upper hopper and the reservoir. This was in 1877. I have never seen one of these machines that didn't have a gate there.

196 I don't know what I would say if it was made to appear that there was no Roberts hopper in 1877 that had a gate at that place. I never seen a screen in operation without a gate; I never seen it; I don't think I am mistaken. Everybody is liable to make a mistake; but it was about 1877 when I worked these machines first. I never saw one worked without a gate at the bottom of the hopper. I have seen many of the Roberts machines, but they have always had a gate on.

Q. Now, will you tell me why that machine wouldn't operate to screen coal without a gate there?

A. Yes, sir.

Q. Tell us why.

A. The tub comes this way with terrible force, and if there is no gate there the coal will fall right down here to this gate (meaning the lower gate), and it wouldn't have no time to screen.

Q. The bucket is in motion, isn't it?

A. If there was no gate or board there the whole coal would run down.

Q. Now, we will suppose that the bucket was not swinging past

the top of the hopper, but was brought over the hopper and was simply emptied on top. In that case wouldn't the machine operate without that board to screen the coal?

A. I hardly think so.

Q. Tell me why.

A. It would run too fast, anyhow. There may be big lumps that can't go through there, and all the dust will fall down in there. If there are plenty of teams hauling we try to keep the machine empty. Sometimes we can't do it. A large portion of the time the hopper is nearly full of coal. No, sir; the coal does not lie on the
197 screen. We keep this empty. We keep it empty and this door shut as close as we can.

Q. You mean the door at the bottom of the hopper "B B'"?

A. Yes, sir; the door on top.

Q. That door is simply to enable you to allow the coal to go into the hopper without going into the reservoir?

A. Yes, sir.

Q. And when you want to screen and let the coal pass into the carts you open the door?

A. Very easy, as easily as we possibly can, and we let the coal fall down as slowly as possible. When I used this machine I refer to I was in the employ of the Sierra Coal Company, Captain Blair, and Mr. Bull, before the Oregon Improvement Company came in. I know that was the Roberts machine we used. The square-hopper machine was the Blair machine, but I refer to the Roberts machine.

(By Mr. McCUTCHEN:)

Q. The machine to which you refer is Plaintiff's "Exhibit 2"?

A. Yes, sir; this one. We used the other once in awhile—not steady, but once in awhile. Most of the time we used a square hopper. Mr. Blair used one of Mr. Roberts' machines. I don't know who owned it, but I know it was supposed to belong to Mr. Roberts, and this was a hopper company or something like that. I don't know the name of it. I always know that the machine belonged to Roberts, and it was always known on the city front as Roberts' screen. I do know that Mr. Roberts owned that machine. I knew it because everybody told me that. I found Mr. Roberts moved the hopper himself. He had his men move the hoppers always, and if the company employed those hoppers we had to go to Roberts' to get that hopper; so he must have something to do with it.
198 Yes, sir; I went to Roberts' personally. I worked for the company five years, and did nothing else but move the hoppers and attend to the hoppers. I went after a machine and got it from Roberts by direction from Mr. Blair.

(By Mr. McCUTCHEN:)

Q. You say, without regard to the person from whom you got it, that it won't screen without the gate?

A. No.

Examination-in-chief of LUTHER WAGNER, a witness called on behalf of the defendant:

The WITNESS: I am a mining and civil engineer. I reside in San Francisco; have been a mining and civil engineer since 1868; am familiar with the methods employed in screening and delivering coal; have given attention to that branch of business; have never been engaged in screening coal personally, and yet I have given the matter considerable attention; have made a study and examination of letters patent issued by the Government of the United States for improvement in coal screens and chutes. I spent about six weeks in examining all of the patents—the United States patents and the English patents—and kindred literature bearing upon this subject, and also made a digest of the matter in a suit similar to this suit that was tried about two years ago. I put that digest in writing. I haven't it with me at this time. I gave it to Sydney Smith; have examined reissue letters patent issued to Martin R. Roberts, of San Francisco, for an improvement in coal screens and chutes, bearing date October 8th, 1876, and numbered 7341. I am familiar with the invention therein described; have given considerable attention to the discharging and unloading of coal through
199 chutes and screens. In 1876 and 1877 I was employed by the Brazilian government to examine and report on all the coal deposits of the empire, and in 1880 and 1881 I was employed by the United States Government to examine all the coal mines in this State; that is about the extent of my familiarity with it; also, in 1877, I think, I designed and laid out the railroad and planned the coal bunkers for the railroad from Topeka to Carbondale, in Kansas. I have always kept myself well informed about the state of the art relating to coal. By direction of the officers of the United States Government I visited California to examine the coal mines of this State. I examined the coal breakers and chutes and screens up at the mines and in use there. There was nothing strikingly peculiar about them or different from anything else, so I gave them no special attention. They didn't fall within the category. I was required to note any peculiar or unusual circumstances, and I didn't see anything unusual or peculiar about them, and simply referred to them in my report as screens and chutes. I have only given attention for a comparatively short time, in connection with the study made in this case, to coal screens and chutes, but I might say I have given special attention to it. I have known this Roberts coal screen and the other portable screens for the past ten years, since I have been in San Francisco, and have examined them in a careful way. I have made a special study of all the literature upon the subject and all of the patents upon the subject of coal screens and coal chutes and screening and delivering apparatus.

Q. Now, I will ask you to take the model, Plaintiff's "Exhibit No. 2," and describe to the jury the various elements of which it is composed.

200 (Mr. Boone, of counsel for plaintiff, further examined the witness as to his qualifications as an expert.)

Q. You say within the last few days, or within a short time, you have paid particular attention to this case?

A. Yes, sir; I have been employed to do so; am paid for doing so. I have testified once before relative to this patent.

(Mr. Boone, counsel for plaintiff, submitted to the court that no proper foundation had been laid to examine this witness either as an expert in this case or as a special expert.)

Mr. Estee, counsel for defendant, re-examined the witness, and in reply to his questions the witness said—

I am a civil and mining engineer; have been engaged in this business twenty-two years. I have done a good many things in that line. I have built and located railroads and built railway stations and built dams and various kinds of public work. I have opened mines and managed mines and developed them. With machinery, I have designed and erected considerable machinery of various kinds—irrigating machinery and gas engines and steam-engines. I designed the steam irrigating plant that was erected on the Blythe estate, in San Diego county, and erected them. I built the concentrating works at Murphy's, California. I designed the machinery and superintended the erection of it. I constructed a concentrating plant at *a* Mamos, in Mexico. Recently I put in a new pumping plant in the Blythe building, in the city here, and I designed most of it—all that was not bought ready-made. It was erected under my supervision. I have also been general adviser in patent cases—a number of them. I don't remember all of them.

I know that the Salamander Smelting Company—I was an
201 expert in that case—and the Boston boot and shoe pegging machine.

Q. That related to machinery, did it?

A. That related to machinery; that case was tried here. I don't recall at this time other instances. I have done nothing for the last fifteen years but design and handle machinery and carry on the general business of designing and planning. My business has been more in mining for the past ten years—experting and examining mines—than in designing machinery; that has only been incidental. For the first ten years of my life, you might say, I was in purely civil-engineering work, occasionally varied by mining examinations, and the last ten years I have been mining more or less, but occasionally interspersed with varied kinds of work. I am familiar with the planning, devising, and erecting of machinery in the various departments of machines. I consider myself competent to design any kind of machinery or building or structure that I would be probably called upon in a professional way to undertake. I am familiar with mechanical terms and the devices used to carry out certain mechanical results. I am not a mechanic; I am an engineer. My business is to design and plan and superintend the construction, but not to personally do it with my own hands. A mechanic, as I understand it, is a man who actually builds something with his own labor, uses his hands in that manner—that is,

in one sense, a mechanic may or may not have the ability to design. If an engineer cannot design he is not an engineer. I never drew an application for a patent. I have drawn specifications, but never drew an application for a patent. I never conducted any proceedings before the United States Patent Office in relation to patents; I am not an attorney. I have been called upon to construe
202 patents by attorneys here in San Francisco. Sometimes I have testified in the matter or made affidavit about it, but in a number of cases I did not: I simply advised them as a matter of opinion.

Mr. BOONE: We admit, as a general proposition, that the witness is an expert in his line as a civil engineer and mining engineer, unquestionably.

The WITNESS: If a machine was very complicated I might not know anything about it, what its offices were, but if it was a simple machine I could tell the different parts which compose it and the office or offices which those parts perform. It would depend upon how complicated the machinery was. Ordinary machinery I think I would understand readily from a drawing or an inspection of the machine. If it was complicated and related to a subject that I had no information upon I would have to answer no. I could take Plaintiff's "Exhibit No. 2" and tell the different elements of which it is composed and the function or functions which those elements perform separately or together. I never practically operated this coal machine. I have seen it in operation a number of times. I think I can tell without practical experience what the essential elements of that machine are. I think I can tell the office each element produces in connection with the operation of the machine. There is no doubt about that. The operation of screening coal is an exceedingly simple matter: there is nothing complicated about it; it is the most elementary mechanical operation: you might say it is one of the most elementary things there is to do. It does not require much knowledge to understand it, and I certainly am possessed of that amount of knowledge. I do not know anything about the antiquity of coal screening: I never examined that subject, but I know it is ancient. I am talking now about the screening
203 of coal; about the means of screening coal; the devices for screening coal. I am sure I could tell the functions and relations of the different parts of this machine. I think any intelligent man, any engineer or man familiar with machinery, would be perfectly competent to describe the plaintiff's machine and tell the various functions which each device performs.

In answer to the question as to what the different elements which compose the machine, a model of which is before me, namely, Plaintiff's "Exhibit 2," I would answer by saying that the elements of this machine are the frame that supports it, the hopper which is up at the top, the screen below the hopper which is shown here, and a gate. There are the essential elements of the machine.

Counsel showed to the witness Defendant's "Exhibit J" (being a

model of the Sparks machine) and asked him to state to the jury what the different elements which composed that machine are, and the witness stated it is composed of the elements of a frame, a hopper, a screen, and a gate.

Being asked to point these various devices out, the witness said:

This is the frame (pointing to a particular part of the model), this is the hopper, this is the screen, and the gate is under the hopper. Those are the essential elements of it. Of course it has a secondary fine screen down here (indicating) and some parts on it here, but those parts are really not essential, because when you come down to screening coal you can put on as many screens as you want to. I then say that the essential elements of the plaintiff's machine are the hopper, the screen, the gate, and frame. I find the same essential elements as described above in both the plaintiff's machine, "Exhibit 2," and the Sparks machine, Defendant's "Exhibit J."

204 (By Mr. McCUTCHEN:)

Q. We now call your attention to the diagram marked "Defendant's Exhibit K," and ask you to state to the court and jury what are the elements that compose the mechanism or machine represented by that drawing.

A. Well, there is a hopper, gate, screen and lower gate, and bunker to receive the coal. You might say that the elements of that machine reduced would be a hopper, hopper gate, screen, and lower gate. The only difference between them would be two gates. Of course, if you take the thing as a whole, then the receiving bunker would be one of the elements of it, but before we get to the bunker we have a hopper, a gate and screen, and lower gate. I would not consider the bunker in this case as an element of the coal screen, for it simply serves to store the coal after it is screened. It is not an element of the screen, but is a part of the coal-storing apparatus. It is no part of a coal screen.

(By Mr. McCUTCHEN:)

Q. I now hand you Defendant's "Exhibit L," being the publication entitled "Engineering," with a drawing in it, and ask you to describe to the court and jury what that is.

A. That is a drawing of what is known as the Plimsoll patent. It is marked here "The Agartown coal depot." It is a drawing or illustration of the Plimsoll patent, showing a machine in which the coal is received into the hopper from a car and the car discharges into the hopper, and the coal from the hopper passes on to a chute which has a screen bottom with a gate at the lower end; and then, to answer your question, I would say that the elements of this patent are a receiving hopper (considered as a coal screen), a receiving hopper, marked "B B," and a chute, "F," and a screen—I can't see the letter for it—a chute, "F," with a screen bottom, and a gate at the lower end of the coal screen. The screen is placed with
205 reference to the hopper below the hopper, immediately below. The facts are that here (pointing) is the screen coming

up and the coal is dropping onto two inclined boards (indicating) that I would call the hopper and hopper boards. Here is the screen under it, and then the chute, and here at the bottom is the gate. The elements of the Plimsoll patent are the same as you find in Plaintiff's "Exhibit 2" and arranged in the same way, precisely in the same way. The Plimsoll machine is for screening coal, receiving it from coal cars, and screening coal and delivering it into vehicles.

Q. What is the Sparks machine for?

A. The Sparks machine is for the same purpose—that is, for receiving coal and screening it and delivering it into vehicles.

Q. Is the Sparks machine a portable machine?

A. Yes, sir.

The witness was now shown Defendant's "Exhibit F," which contains a drawing of some device, being the Sparks original patent or the original patent issued to William Sparks, and asked to state to the court and jury the elements of which it is composed, to which he made answer as follows:

This is the same machine. The only difference between the machine shown in this patent and this machine (indicating) appears to be in the location of the gate. The gate in this patent, "Exhibit F," which is the Sparks original patent of 1865—the gate is put here at the lower corner of the hopper and the screen immediately below the gate. Otherwise the elements of it are just the same—that is to say, there is a receiving hopper, a gate at the bottom of the hopper, and an inclined and regulable screen. By "regulable" screen I mean that the inclination
206 of the screen can be regulated—that is, the inclination of the screen could be regulated. The practical effect of that is to slow flow of the coal over the screen or to regulate the speed of the flow of the coal over the screen to insure perfect screening. If the coal varied, then the angle of the inclination would have to be changed—that is, the angle of inclination varies with the size of the lumps and the amount of fine matter with it. The slope of the angle was arranged somewhere from thirty-three to thirty-eight degrees. You take such materials as are run over screens—rocks, coal, earth, and sand—and we will say it runs on the screen at an angle of somewhere from thirty-three to thirty-eight degrees—that is, from the horizon—and that is what we call the angle of repose. Now, that is just the angle that any pile of material will assume so that it will stand, but the moment you increase the angle the coal will slide. For instance, if the coal slid at thirty-three degrees and you raise that screen to thirty-two it would lodge on the screen, and, *per contra*, if you made it thirty-four it would run off, and if you made it steeper it would run off faster. As represented in the second Sparks patent, the flow of the coal is regulated. The function of the gate "*h*," being a toothed gate at the lower end of the screen in Plaintiff's "Exhibit 2," is to retain the coal in the machine. This gate, which is at the lower end of complainant's machine, does not in any manner control the flow of the coal from

the hopper on to the screen. That is an impossibility. The coal dropped into this machine will slide on down to the gate until it is stopped by it, and therefore the only function of the gate is to arrest the flow of the coal and keep it there or run it on to the
297 ground. I refer to the gate at the lower end of plaintiff's chute. It would seem impossible for the gate "*h*" in plaintiff's machine to control the flow of the coal from the hopper "B B." Of course, if this was all piled up here full of coal in the so-called reservoir, the gate would be damming up the outlet, damming this up with coal, and it would stop the flow out of the so-called reservoir. It is obvious that if the reservoir was full and the hopper was full the gate at the lower end would stop the flow. But in the screening of coal for the purpose of separating the larger particles from the smaller particles that gate "*h*" in plaintiff" machine does not control the flow of coal from the hopper into the reservoir. The idea of this patent, as described, is to receive coal from a swinging tub, and the coal is supposed to be received in this hopper and go down over the screen and be screened in the act of flowing, and the gate simply serves to hold it there until it is wanted. It can have no other function, because there is nothing but that to impede the flow of coal. When the coal once flows out of the hopper it will continue flowing down until it is arrested by some obstruction, which is in this case the gate.

Q. Now, taking the Sparks machine and the Roberts machine as represented by these models, could a mechanic skilled in the art to which they appertain build the Roberts machine from the Sparks machine without the exercise of any inventive faculty?

Mr. BOONE: I object to that as utterly incompetent for this witness to testify. The witness has already testified that he is not a mechanic.

The COURT: Yes; I think so.

298 Exception No. 14.—Mr. ESTEE: We will reserve an exception.

The WITNESS: I have stated that I have made examinations of various patents appertaining to the screening and delivery of coal, and that I have put the result of my examination in writing. I I have that result here with me in this memorandum.

Cross-examination:

The WITNESS: I don't say in my examination-in-chief in referring to Plaintiff's "Exhibit 2" that the "upper hopper" was one of the essential elements of that machine. I didn't use those words, "upper hopper." I said hopper, screen, and gate. In referring to the Black Diamond machine I did say that the essential elements of that machine were the hopper, the screen, and two gates—that is, I said the essential elements of that machine were a hopper, hopper gate, screen, and lower gate—that is, it was my idea, to accomplish what they wanted to accomplish in that device they had two gates. I have also testified that the essential elements of the

Sparks machine were a hopper, screen and gate, and frame. All the machines have frames or the equivalents of frames. I also testified that the elements of the defendant's machine were a hopper, a screen, and a gate.

(By Mr. BOONE:)

Q. Then any machine that had a hopper, a screen, and a gate would be the equivalent of the patented machine, wouldn't it, under that system of reasoning?

A. No; I don't say it was the equivalent. I didn't say anything about it. I simply answered the questions asked me. I didn't say that. You ask me what are the essential elements of a railroad car, and I answer, You might say wood and iron. Yes; it has wheels and a body. The axles are also essential to a railroad
209 car and so has a wagon wheels, axles, and a body.

Q. Then a wagon would be the equivalent of a railroad car, wouldn't it?

A. No, sir.

Q. Why not?

A. Because it does not do the same work or do it in the same way. As a method of differentiation I do place some importance upon the work a machine does and the way it does the work.

Q. Would you claim the machines were the same if they did not do the same work in the same way?

A. No.

Q. Then a machine that had a hopper, a screen, and a gate arranged on the side of the hill for taking the coal from a car that comes out of the mouth of a tunnel in a mine and passing the coal over a screen and then into a bunker would not be the same, would it, in your estimation, as a portable machine arranged to receive the coal from a swinging tub on a wharf and in its passage from the tub from the wharf be received in a cart in a screened condition?

A. Certainly not. They are not the same things, but they might both of them screen coal in the same way and yet they are not the same thing. If you consider them as coal screens they might be identical. For that purpose they are the same.

Q. A railroad car and a wagon both move, do they not, one pulled by an engine and the other by horses?

A. Yes, sir.

Q. They are adapted to do different work, aren't they?

A. Yes, sir.

Q. In order to produce this adaptation there would have to be some change made in the machine that was connected with the mine, wouldn't there (referring to the Black Diamond ma-
210 chine)?

A. There might and there might not. You are asking a very general question. They might and might not. I don't know what you have in mind. If you are talking about these two specific machines, why of course it — obvious that there is a difference in the general arrangement, but not in the essential elements. I made the drawing, Defendant's "Exhibit K." I got the idea from

sketches and questions put to Mr. Jones. They are only rough, rude sketches made by me and were probably thrown into the waste-basket or fire. I don't know where they are now. I made this drawing last week and threw the sketches away at the time. I made it for the purpose for which it is being used now. Mr. Jones seems to be an intelligent man, but I must say that I never experienced so much trouble in getting at just what he did. He could not draw and could not illustrate, but after two or three hours' questioning I got from him what he said was a fairly acceptable knowledge of his idea, and then I put it on the drawing clearly, according to the dimensions which he gave me, and yesterday morning it was submitted to him, and he said it was practically correct. He gave me the dimensions that he wanted me to illustrate. He told me the dimensions of this upper hopper here and the length of that screen and the approximate height. I refer to the general arrangement of the hopper, screen, and gates and bunkers. I think he told me the length of the screen was about fourteen or fifteen feet; something like that. I don't remember what he said as to the capacity of the hopper. He told me it was about six feet one way and four feet the other way. He did not tell me the capacity
of the fine-coal chute below. He described it as a fine-coal
211 chute with a bunker underneath. Of course I didn't for a moment imagine that this was to scale or that it was exact. My idea was to show truthfully his views of what he had in his mind. After the matter was partially drawn he remembered that there was a fine-coal screen under here and a fine-coal bunker. The gate was put here after the drawing was made, but the witness inspected it. That was my fault. He told me about the gate, but I neglected to put the gate on until yesterday morning. Before writing the word "gate" I think there was a mark there for the gate. I never asked him about this, because I didn't consider that bunkers were essential to any clear view of this case. I was only considering it as a method for screening coal. I did know that this drawing was to represent the machine that was in use in Contra Costa county at the Black Diamond coal mine, so he told me, and that this sketch was a drawing to represent that machine. I did understand the use of the machine at the time of making the drawing; that it was to receive coal from the mine and screen it and deliver it. I did not at that time know about how the coal was received in a bunker there. I did not take into consideration the fact that the coal was delivered in large quantities and that it must be held in some place before it was taken away. I was acting under instructions of counsel to get out of the witness what his ideas were. He suggested everything and told me how to make it and I simply acted in the capacity of draughtsman. Yes, I have said I was a mechanical engineer and that I am accustomed to getting up plans of machinery. If I was getting up a plan of a machine for handling and screening and delivering coal I would put a bunker at the bottom—that is, I would put something to hold the coal. I didn't know anything about the plan of those bunkers at the Black Diamond mine.

I simply acted, as I say, as a draughtman for this witness. I
212 don't know how the upper gate was mounted. He told me that it slid up and down. Practically all that I knew about that gate was that he told me that there was a gate there. I don't know whether it hung on hinges or not. To my eye it made no matter, so long as there was a gate or some obstruction there to obstruct the flow of the coal, whether it worked up or down or sidewise, so long as it interrupted the flow of the coal. I don't think I asked him how it was, but I think he testified about it yesterday. I have testified that I read this article describing the Plimsoll patent. I think I understood it when I read it. I understand it now from memory. I have read the Plimsoll patent also. Yes, sir; it has a coal screen and chute and lower gate. Litt this gate here (indicating) and this hopper and that screen and this gate and there is the Plimsoll patent.

Q. Will you show me where a gate is referred to in that description?

A. (Reading:) "The inclined hopper or chute F is usually kept full of coal and is furnished with the sluice H, at which the coals that are drawn off into the sack I can be regulated." What we call a gate is what he calls here the sluice "H." I do not find the word "gate," but I find the words "sluice H," which prevents the coal from running out into the sack. A sluice is something through which something passes or flows like water or like coal. In English patents the word "sluice" is often referred to as the equivalent for our word "gate." He should have said, to make that complete, "the sluice-gate H," but the lettering and drawing indicates that fact very clearly that this is what it meant. This machine is
213 placed in an excavation below a railroad and between the railroad track, between the two tracks of the railroad and underneath the railroad. It may be a tram-road as well as a railroad. Coal is brought to it in cars, and, being dumped from the car, drops down and allows the coal to fall on the hopper boards—the hopper boards "B B'." The coal drops from the bottom of the car, and these side boards direct that coal down onto that chute. This is referred to in the patent (reading from the patent), "and immediately under the track 3 is the delivery hopper or chute F into which the coals fall when the flap bottoms of the truck are released. This chute is made of the width between the rails, and, in order to direct the coals into the platform, on each side of the rails is inclined, as shown at *b' b'* in Fig. 1 and 2, these inclines forming, as it were, a continuation of the hopper sides. The lines are placed sufficiently wide apart to permit of a flap, *d*, at the top of the inclines *b'*, for the workmen to walk upon; but in some cases, instead of having a flap top, *d*, as shown, the inclines are made less steep, as at X, Fig. 1, so that they both serve to walk upon and also to conduct the coals," and it is very clear to my mind and also from the drawings of the patent that there is a hopper board, and it is shown there by the heavy black lines.

Re-examination.

(By Mr. McCUTCHEN:)

Q. When the examination was suspended you were explaining to the court and jury the different elements composing the Plimsoll patent, and that explanation was interrupted at the hour of adjournment. You will now, by reference to the Plimsoll patent or to the drawings in this publication called "Engineering," explain to the court and jury the elements of that machine.

214 A. Now, gentlemen of the jury, those hopper boards that I was explaining about when we adjourned—this sectional drawing represents the coal cars in here (indicating), and here are these boards, inclined boards there (indicating). Now, they serve to catch the coal from the bottom of the car and direct it onto this chute, and there are additional boards here (indicating), and then the coal screen is in here (indicating), comes down like that (indicating). Here are the boards marked "*b*" that are shown here between the cars. The office of those boards is to act as a hopper, and they conduct the coal from the car down into the chute and screen. That chute is marked "F," and I think the screen is marked "E." The bottom of the chute is "E," and that is the screen. The gate is marked "H." The hopper "*b*" is not the bottom of the car. That hopper "*b*" is something entirely separate. It is between each track here (indicating), and it says in the specification here, and is shown in the drawing, that the office of those inclined boards is to conduct the coal down into the chute and onto the screen.

(By Mr. McCUTCHEN:)

Q. You were asked by counsel this morning whether a hopper such as the one represented on the drawing, "Exhibit K," if built on the side of a hill to receive coal drawn on a car from a tunnel and dumped in there, would be like the plaintiff's machine. Now, I will ask you whether, if a hopper with an upper gate and chute below it and lower gate had been used either at a coal mine where coal was extracted from the mine or at any other place with a screen—if a mechanic skilled in his art or skilled in the art to which that appertains could reproduce a portable machine like the

215 plaintiff's model without the exercise of inventive faculty?

Exception No. 15.—(To which question plaintiff's counsel objected. The court sustained the objection and defendant excepted.)

Q. Can a man skilled in his art, the art of which this peculiar mechanism belongs, after having seen the Sparks machine, the model of which is before you, make the plaintiff's machine as represented by the model before you, "Exhibit 2," without the exercise of more than ordinary mechanical skill—that is, would it have required the exercise of inventive faculty to have made the Roberts machine after having seen the Sparks machine?

Exception No. 16.—(To which question plaintiff's attorney objected. The court sustained the objection and counsel for defendant excepted.)

Q. Have you ever seen the Roberts machine in operation?

A. Yes, sir; a number of times; a good many times. From 1881 up to a few days ago I saw it in operation along the city front in various places. I have taken careful note of its operation, so that I am able to state all the facts as to its operation as a practical machine. I couldn't tell how many times I have seen it operate. It would be pretty hard to say. During the year 1884 I was a contractor in building the sea wall here and I saw them all the time in use, but to say how many times would be impossible. I have examined it both here and in Oakland. I examined, also, the machines of the Oregon Improvement Company, and I have examined all these machines in use here. I am acquainted with the Sparks patent, a model of which is before me, and have read and
215 examined that patent carefully. I understand its construction and mode of operation. It is a patent for a portable coal screen. Plaintiff's machine is also a patent for a portable coal screen. Plaintiff's "Exhibit 2" is a model of a portable coal screen. "Exhibit J," the Sparks machine, is also a model of a portable coal screen.

Q. Now, I wish to ask you, from your knowledge of the Roberts machine and its mode of operation, to state to the court and jury whether a mechanic skilled in his art—that is, the art to which this peculiar specimen of mechanism belongs—could make the Roberts machine after having seen the Sparks machine without the exercise of his inventive faculty.

Exception No. 17.—(To which question counsel for plaintiff, Mr. Boone, objected. The court sustained the objection and counsel for defendant noted an exception.)

Recross-examination:

I have carefully read and digested the Plimsoll patent in evidence. Yes, sir; it has an attachment to weigh coal after it is screened. It is not a single inclined plane. It consists of more than that. It consists of a hopper and screen and gate.

Q. Now, suppose we should take "Exhibit B" and cut the top hopper entirely off and should mount the inclined screen which is below it underneath a railway car in an excavation between the tracks, how different would the remaining portion of that machine be from the Plimsoll machine? Wouldn't it be identical?

A. No, sir; it would not. If you put a railroad car on top of this machine you would have practically the identical thing.
217 I do not find the upper hopper in the Plimsoll machine. It so describes it and it is so shown in the drawing. I find a reservoir on a screen with a gate below it. These inclined boards marked "B B" is the hopper—that is, the side pieces. That corresponds to these boards here (indicating), and here are the sloping sides of the screen. These sides slope exactly as these sides slope.

Here is the screen bottom in here and here is the gate (indicating). I do find the portion of the space which separates the two lines of cars practically, "B." The edges I find are inclined. The mechanism referred to forms one hopper. No: I do not find two hoppers, but I find a reservoir, though. The hopper is these inclined boards "B B'." I haven't said there were two hoppers—that is, a hopper is something that receives and conducts. That is all the office there is to that thing. It receives and conducts coal down on that screen, and that is what the side boards here do—receive and conduct coal down onto the screen. The hopper in the Plimsoll patent performs precisely the same operation that it does in plaintiff's, namely, it catches the coal. The dotted lines underneath the car in the Plimsoll patent represents the door where it swings open. I have read the specifications of the Plimsoll patent and understand it. I read it first two years ago carefully when I made the digest of the patent. It is not a portable machine. It is a fixed machine. It is on trestles above the ground. The cars run onto it. It is simply a machine for receiving coal and screening it and storing it onto the screen and receiving it into some vehicle, and also weighing it, if desired; and I contend that it is precisely like

218 that machine—the plaintiff's machine—I mean the Roberts machine—that is, it does the same thing in the same way.

I never saw the Plimsoll machine in operation. Of my personal knowledge I don't know whether one of them was ever made or not. I was not there in the place which is described in "Engineering," but that is a standard publication and can be relied upon. I have read that publication, but I have never visited the place. I know what the essential elements or feature of a portable machine for receiving coal from a swinging tub and discharging it into cars are and the screening and handling it automatically in its passage through the machine is.

Q. What is it?

A. Well, it would consist of a portable framework, a hopper, a screen, and a gate somewhere.

Q. Is there any necessity that the hopper and screen and gate should be arranged in any particular manner to do that work?

A. No; it does not appear to be necessary, because they have been arranged in various manners.

Q. Then, you would claim that any portable machine that had a hopper, a screen, and a gate would be all that was necessary in receiving coal from a swinging tub and screening and passing it automatically into carts, would you?

A. Yes; I would say that was the prime requisite, and, in addition to that, the parts would have to be fairly proportioned.

Q. Well, suppose the parts were fairly proportioned—what I want to know from you is, whether these three elements, the hopper, the chute, and the gate, regardless of their peculiar arrangement and construction, would be sufficient to constitute a machine for that purpose?

A. I don't think it would for a practical coal screen.

219 Q. It needs something else?

A. Yes, sir; it does.

Q. Tell us what that is.

A. Something to check the flow of the coal over the screen and make it flow in a thin stream.

Q. That would be absolutely necessary, would it?

A. Yes, sir; as I have seen coal screens here. I think it would be impossible without a check-board or something to check the flow of the coal on the screen.

Q. You know that is true?

A. Yes, sir; I know that if you dump the coal direct into a machine like this Roberts machine and let it flow direct onto the screen the bulk of the coal would run down and it would lodge against the gate below and the coal would be unscreened; but if you had a check, so as to let that coal flow down over that screen in a thin stream, you would have thorough screening.

Q. You were witness in the case of The Excelsior Coal Company *vs.* The Oregon Improvement Company, tried in this court, were you not?

A. Yes, sir. I think in that case the Oregon Improvement Company did bring Mr. Howard out from the East. I think they brought him out as the business manager, not as a coalman. I don't know that they brought him out as a coalman. They brought a man out who was a builder and designer. That so appeared in his testimony. I should say that I was not a witness in that lawsuit. I was a witness in the equity suit, not that action at law. I was a witness in the equity suit that followed the action at law. I testified in it. I didn't hear Mr. Howard or anybody else
220 testify. I only know it as a fact from the record. I think it did appear in Mr. Howard's testimony that they built a system of machines here at the Oregon Improvement Company's works after the most improved plans that were known in Pennsylvania and the Eastern States. I have seen the device or machine used by the Oregon Improvement Company which was claimed to be an infringement of this patent in this case.

Examination-in-chief of P. B. CORNWALL, called as a witness on behalf of the defendant:

The WITNESS: I reside in the city and county of San Francisco; have been in this State for forty-two years; am president of the defendant, The Black Diamond Coal Company; have been connected with that company since 1865 or 1866. The mine that we were then working was located at what was called Nortonville, in Contra Costa county. I was first secretary of the company and a stockholder and general manager at the same time. I became president of the company two or three years after that, as near as I can recollect. I guess about two years, but it was before 1870. I have been president and general manager ever since; am familiar with its business affairs. I have been continuously engaged in the coal business since 1865. We have been mining in other places besides Mount Diablo, at Nortonville; have been taking out and marketing coal ever since

then. I have had extensive opportunities of knowing how
221 coal is handled and marketed. So long as we ran the Mount Diablo mine, continued working the Mount Diablo mines, I visited them every week and always spent some entire days at the mine every month. I selected the engineers and superintendents and everything that was built or done about the mine or every new opening was submitted to me, and I examined and passed upon it before any money was expended upon it. About the time we bought the Mount Diablo mines we bought a mine at Bellingham bay, on Puget Sound, which I think was the only one mine in the State of Washington or on the north coast. It was then open and producing coal. We continued to work that up to about some time in 1874 or 1875. I think we closed down the Bellingham Bay mine in 1874. I always visited the mines at the north twice a year and spent a week or ten days there. Our company through its agents bought coal lands at different places, and, among others, at Coos bay, and explored them and opened mines there. I believe I have visited every coal mine that has been opened on the Pacific coast—that is, every one that has been operated to any considerable extent. I have been to Nanaimo and to the Wellington mine and to the different mines back of Seattle. We have opened mines on Green river, in the State of Washington, that are considered rather successful mines. I have been a frequent visitor to those mines. I have also visited the mines that the Northern Pacific opened at different points of the Cascade mountains, and examined what they had in the way of veins and machinery. I have visited the Newcastle mines and the Franklin and other mines owned by the Oregon Improvement Company. I have visited the Central Pacific Company's mines—the Southern Pacific Company it is now—at Carbonado, in the State of Washington, and examined
their mine and machinery. I have made trips East mainly for
222 the purpose of examining mining machinery and mines and coal mines especially. I examined the machinery and outside workings of a good many mines East. I did not go into the underground workings. I examined the methods of handling coal by chutes and screens and bunkers and by railroad and the various methods by canal. I have bought and sold a good many foreign cargoes of coal and have a sort of a general idea of the coal-mining business. I don't profess to know all about it. I have devoted my principal time to the coal business since 1866. I have examined every book that I could get hold of that has been published in relation to coal and coal-mining machinery and have tried to keep abreast with the subject. Some of the machinery built at Black Diamond mine was not under my direction. The plans for the bunkers and chutes and openings were drawn by a firm of mining engineers, who were engaged for that purpose, and were submitted to me for approval. They were drawn largely from their own ideas. They were professional coal engineers, and those plans that were adopted were partly my ideas and partly theirs, but we agreed on them. The names of those engineers were Goodyear & Blake. That is the name of the firm we were doing business with at that

time, and for several years continuously never a month passed—I suppose for ten years—that they did not have a bill against us. Their office was in San Francisco and a considerable part of the time it was on the upper floor of the Mechanics' Library building. I don't know where Blake is now. He is somewhere on the Atlantic coast, if living. He has not been living in California for some years. Mr. Goodyear has been engaged out of the State some years. He has been back now a couple of years or longer,
223 perhaps three. He has been engaged most of the time in the State geological and mining bureau mining surveys. The head office is in San Francisco, but he has been conducting explorations throughout the State. When Professor Whitney had charge of a survey, twenty years ago, Mr. Goodyear was one of the surveyors then. He is with Mr. Ireland, in this city. Day before yesterday I found him after a search of some time, but he was very sick, so sick that he will never get out of his bed again, and I was informed by those who understood the case thoroughly that he probably would not live forty-eight hours. I was assured that he could not live. I think Mr. Goodyear was first employed by us in 1868; it may have been in 1867, but I am not sure. He and his partner were continuously in our employ—that is, they had charge of all our underground mining and measured up the mines every month, and made suggestions and reports every month, and if there was any outside building to be done they and the superintendent talked it over and then it was reported to me and considered, and if constructed it was constructed under their direction. They made the plans for the bunkers that were used there for the last fifteen years that the mine was running. The mine has now been closed five years. I think they made the first plans for the bunkers that we had anything to do with in 1869 or 1870. By the term "bunker" I mean a system of hoppers and coal chutes and screens. We had a regular system of those hoppers and screens and bunkers there. I have not the exact date when the work was done there, but I will have it here tomorrow. The first de-
vice used at the Black Diamond mine was there before we
224 bought the mine, and we bought the mine, as I have testified, in 1866. There was one screen there—one small bunker that had one or two screens in it—and I am not sure which. It was a small bunker for loading and screening. This, as I understand it (referring to Defendant's "Exhibit K"), is the thing, and I have looked at this carefully and have heard the explanation of Mr. Jones, who used it; is the one which was at that time there; that was in 1866. In this drawing, "Exhibit K," the principle of the machine represented is correct, but whether that is the correct size, proportionate size, or not, I am not able to say. The hopper would hold three or possibly four cars. The coal cars that they were using then, I think, were about three-quarters of a ton. At the bottom of the hopper there was a gate. I don't know whether the gate was on hinges or whether it went in a groove and pushed by pressure up and down. I know that there was something that stopped the coal there. I will explain that by saying that the

whole thing was so crude and antiquated that we didn't use it any longer than until we could build other and better ones, and better located. It is over twenty years ago, a good deal over twenty years ago, since that was destroyed; nearer twenty-five than twenty. We bought the entire plant there in 1866 with the machine on it. I suppose the Black Diamond Coal Mining Company, which preceded our organization, built it, but after it came under the management of the present owners we have been continuously since that time carrying on improvements and building different and better appliances; but take "Exhibit K," which is a drawing of the machine that was there when we bought the plant, there was a gate or slide at the bottom of the hopper or something that stopped the coal, retained it in the hopper. My understanding is
225 that this gate was something that was on hinges and lifted or swung upon a hinge. I am not sure about that. I have an impression in my mind that it was a slide that slid up here on this part or on that part and was handled by a lever, and that it slid down so as to lap over the orifice at the bottom of the hopper. It filled up the aperture at the bottom of the hopper and stopped the flow of coal and performed the function of a gate. When the gate was raised it allowed the coal to fall down over this inclined plane here (indicating). This inclined plane, so to speak, was two-thirds of the way a screen made of iron bars running parallel—running lengthwise up and down. There was a gate here. My memory is that the whole shape of it there is a little different from the way I remember it, but at the lower end of the screen or a little below it was a gate that slid up and down in grooves made by sticks of timber on each side. I think it was a wooden gate covered with sheet iron, and was raised by a lever similar to some of the levers here that I see—a hand lever like that (indicating). The screen was probably ten feet or possibly fourteen feet long. I should think the whole length of the chute until we reached up to the gate at the bottom of the hopper—I should think it was twenty-five feet long. It may have been less, and it may have been a little more. I can't say exactly. After the coal came over the screen and was inspected by the boys who inspected it the lower gate was raised and the coal went into the bunker and kept running into it until it got up to a point where it would fill no higher. There was a chute where this place came across here (indicating). At the bottom of the bunker there was an iron lip like you will see on some of these screens here,
226 just such a one as that exactly (pointing to defendant's model), unless it was a little larger, at least more of a curved thing, and, of course, it was a little larger. That was raised or lowered by a lever to let the coal out into ordinary country wagons and large wagons hauled by four and six horses. That was before we had a railroad to the mine. It was seven miles to the landing. We hauled our coal then in wagons. The coal was passed over the screen to take the small coal and dirt out of it. It was the ordinary purpose adopted for screening coal. It is necessary to screen coal in all bituminous coal mines—that is, in all coal mines except an-

thracite mines the coal is screened in that way. There is a different way of doing it in anthracite coal mines. That has been so as long as there is any history of coal-mining. The object of screening is to separate the fine coal and the dirt from the coal that is to be used. This drawing, "Exhibit K," is a substantially correct drawing of the device that was on our mine there in 1866. I do not think it is entirely correct—that is, the part under there, the device to catch the screening, was not there. I think that from the bottom, where this bottom came across here, was dropped down some in order to give more capacity to the bunker. I think from there down the timbers were open. I believe that for a very short time we used that while our works were being constructed. I think I had that put over there—some iron perforated like a screen, a screen of perforated cast-iron plates—to take the smaller and finer stuff out, and the other coal, the greater bulk of it, went to market as nut coal. The fact is that the screenings passed through this
first top screen, and the marketable coal went on down to
227 the lower gate and from the lower gate into the bunker.
We had a hopper and we had a gate or stopper at the bottom of the hopper. This gate was a sliding door, I should think. We had a sliding door to keep the coal in the hopper until we were ready to discharge it, and we had a screen, and we had a gate at the lower end of the screen and then a despository or place below for the coal to reach. The next machine we built there was, I think, in 1866, on the Black Diamond mine, on this same mine. I will explain. The mouth of the mine, or opening of the mine, was at the top of the mountain, an elevation of nearly seven hundred feet from where the road went, and the wagons had to go winding down around a mountain to get down to the level of the road, where they would proceed on a direct course to the landing, and we immediately built our works down below, and as soon as we got them so we could commence to use them we tore this machine I have described down and used some of the materials—the bars for screens and other things. We built that on the same vein of coal, at an opening which we made on the vein a thousand feet away from where this coal came from and at a point six hundred feet lower, I should think. The difference between the machine that was there in 1866, when we bought the mine, and the machine we built there was that the point (indicating) extended down and out about two feet outside of what is here called a bunker, and at the end of that we had an apron—that is what I would call it—or a lip, and it covered the chute. I think there were five car tracks leading up to the different points on that bunker. I think there were five places where it extended down that way—that is, there were five hoppers and five screens. I am not sure but that there were six. They were longer; I suppose at least forty feet from the
bottom of the hopper down to the point where the coal
228 left the lower end of the chute to go into the cars. We immediately put a railroad there and built the railroad while we were building the bunker and took the coal from there by railroad cars. We also put under it, extending the same way down,

chute of that kind for screening, with the same kind of a lip; under that a third one, with a solid bottom, covered with sheet iron, in which we collected and saved the slack—the third quality of coal—and marketed that also. The difference in the two machines—the old one and the new one we constructed—was that the old one was a very crude thing. The new one we built had a roof—a shingle roof—protecting it from the weather. The screen was a little higher up than on the other and had a gate in it there (indicating) and right at the foot of the screen. It was managed, controlled and held the coal, besides being screened, until a boy picked out anything in the shape of bone coal or stone and threw it through an opening there was, and then when this gate was raised the coal ran down to this point and kept running on top until it fairly ran off at an angle, perhaps, of not more than seven degrees to the bunker. I believe that series of chutes and the bunker would hold six or seven hundred tons of coal. There were five or six of these separate screens and chutes and hoppers. This first place where the coal was first dumped, namely, the hopper, where it was first stopped by the gate—being all a part of this bunker or screening device—would hold four or five cars such as we were handling then, and those cars were increased in size about one-third from what we had previously been having—I mean four or five long tons of twenty-two hundred and forty pounds. The coal was kept in there by a sliding gate that ran up at about right angles with this
229 screen; a sliding gate that run up to the uprights here—the timbers that held the roof and were securely fastened—and had a lever to pull it up and down. In practice, when we wanted to let the coal run down over the screen, as the hopper scarcely ever had more than one character of coal in it, sometimes one and two or three cars would be dumped into the hopper, when there was a good deal of trouble in assorting the coal below; but ordinarily cars would come along very fast and be distributed to the different chutes—different hoppers—and a car would dump in there (indicating), and if there was no coal in before the slide would be down within four or five inches, so that when it was dumped a portion of the coal would begin to run through and would run down until it was stopped by this gate at the bottom of the screen; and if another car was not dumped until that was nearly drawn out the gate would never be closed at all, because a single car would not make it necessary; but if they saw—there is a topman here who guides and manages this thing and takes these cars as they come along and attend to them and at the same time attends to the lever that manages this gate, and if a car is being discharged and another car was coming close on it so it was going to crowd it he would push that gate further down and sometimes clear down. If he pushed it within three or four inches it would gradually block up, so there would be a large amount of coal in the so-called hopper. Two or three cars coming in, perhaps we would keep it nearly closed, so that the coal would not run down onto this screen faster than it could be taken care of and seen that it was properly screened. In the lower end of the screen there was a gate. The majority

of the time, or say every half hour, it was opened part of
230 of the way. Perhaps it was opened or closed half a dozen times in half an hour—that is, the lower gate. We have had so many bunkers there—I am trying to separate them. The coal did go to the face of this bunker and outside of it. This lip at the end of the chute turned up and stopped its going any further, and so it continued on until it filled up the bunker, and there would be in the bunkers to which these different car tracks led sometimes five or six hundred tons before any would be taken out. Then when we wished to remove the coal and take it to market the cars were run along under the bunker or under the lip, and the coal was from thence dumped into the cars and taken over the short railroad seven miles to what is called the Black Diamond landing, on the San Joaquin river, below Antioch, and thence to market at San Francisco, Stockton, and other places. When an empty car came along under this lip to this chute to be loaded—for there was a corresponding number of these chutes, a number of places above where it was dumped in—the cars came along, a train of cars—there would ordinarily be, I think, about sixteen cars that would hold five tons each. The train would go above and shift the engine, and then the lower end of the train—five cars would go under those five different chutes and this lip would be let down and the car would be filled; in about a minute the whole five would be filled, each one from its proper place, and then the train would move down and another five empty cars be under there and the same process repeated, and the fifteen or sixteen cars would be loaded and away—well, in ten minutes. When the cars were full—the man of the train handled them, each man at a car, and whenever his car
was full enough he had his lever by which he raised the
231 lip up and stopped the flow of coal; just high enough to stop the flow of the coal; raised it up an angle, say, of fifteen degrees. The only changes in the coal brought to this market that has been mined on this coast, so far as I know, within the last eighteen or twenty years is that twenty years ago the only coals mined on this coast on the American side were from Mount Diablo and from Bellingham bay. The Mount Diablo coal is very ordinary, rather an inferior quality of lignite, and carries from thirty-one to thirty-eight per cent. of fixed carbon, and it is not a good house coal. While it is quick burning, it is an inferior steam coal and contains a great deal of sulphur and other matter that destroys the iron in boilers and furnaces. It is poor coal. The other mine that was being worked at that time on this coast, the Bellingham Bay mine, was a vein about eleven feet thick. The strata and the texture of the vein were such that it was necessary to work it all out from roof to roof to protect the mine and to protect the miners. The best part of the coal was about three feet and a half to four feet thick and was a very clean lignite coal. The rest was a mixture of good coal and streaks of slate and shale through it; thickness of paper streaks, but sufficient to make an extraordinary amount of ash when the coal was consumed, and therefore make a coal not valuable at all for steam purposes, as there was so much of

it went to waste or ash, and for house purposes it was not good. There was only about three feet and a half to four feet of it that was good coal; the rest was very poor. If you put a coal-scuttle of coal into a fire you would have a pile of ashes very nearly equal to it when you took it out. Since then a great many mines have been discovered north of here on the
232 coast. Bituminous and semi-bituminous coals that carry as high as sixty per cent. of fixed carbon and the remainder combustible matter only carries about two and a half or three or three and a half per cent. of ash and about two or two and a half per cent of water, so that there is some ninety-four or ninety-five per cent. of valuable combus*t*oble matter, of which sixty per cent. is carbon and the other is bituminous. I don't think there has been any change for the last twenty years in the hardness or softness of the coal that has been brought to this market, except that the Wellington mine, which was not at that time open—it has been running now twelve or fourteen years—is a harder coal than the other coals. It is not true that coal gets harder as you get deeper into the vein. It does not require any different machinery to screen and handle the coal now than it did twenty years ago, except that it is a little harder times now, but not harder coal. It requires no different screening from what it required any time within the last two hundred years wherever coal has been mined, except—I may make this explanation: It is now a trifle over one hundred years since they first discovered anthracite coal in Pennsylvania, and, although it is only within the last forty years that it has been mined to any large extent, that coal is handled very differently from what coal was handled before or from what bituminous coal is handled now. Bituminous coal is found in the East in large quantities, as well as in England and Australia. The production of coal in England is almost entirely bituminous, and in all other parts of the world, except Pennsylvania. Some other anthracite veins have been discovered—notably in British Columbia—large ones and a great many small ones, but no anthracite that could be profitably mined to any
233 extent is recognized anywhere except in Pennsylvania. We have had a screening device on the wharf at the Bellingham Bay coal mine. We did not have any movable screen like this. We had no movable screen like this the plaintiff exhibits. We had coal bunkers and screens there, and they were there when we purchased that property, identical with the one which I have seen and been attempting to describe as the one which was at the Black Diamond coal mine. We bought the Bellingham Bay property in 1865 or early in 1866. It may have been earlier, but I have not looked at the records to see. This device was situated on the wharf. Supposing this step is the high land and the next step there is the wharf, the wharf was built out at a height of about fourteen feet above ordinary high tide, and it was perhaps forty feet—no; about thirty-five feet—below the bank of the land opposite. A wharf was built out in the water of sufficient depth for ships to come in to load coal, and the bunkers, with the screens, hoppers, and gates, were built

resting against this bank and running down like that chute does on the wharf, with a lip at the end of the chute.

That device was there on the wharf in plain view. It occupied the width of the wharf where the wharf came to the bank. The wharf was widened so as to accommodate the entire front of the screen. The screen and bunker occupied all of the in-shore end of the wharf. It was made wider than it was further out for that purpose, and vessels came right up to the side of it to load, and the coal that was loaded in these vessels that came to San Francisco was screened right there and ran right aboard of the vessel. Captain Roberts's vessels went there for loads of coal to bring down here to San Francisco. We employed him to transport our coal here for about a year. I think the Merry Bell Roberts was running
234 there for us. I don't know the exact year, but I will have the dates here in the morning; it was about 1872; it may have been 1873. I am not sure. The device, of which Plaintiff's "Exhibit 3" is a model, we had constructed here in 1885 or 1886. I think it was when we were first shipping coal from Green river. I think I have a memorandum by which I can tell (examining a paper). According to my memorandum it was in 1887 or 1888. This model, Plaintiff's Exhibit 3, is substantially a model of the form of two hoppers. This is substantially a correct model of two coal chutes we had constructed—that I ordered constructed. One of them had a screen in above that gate there—above the lower gate. I think above the upper gate, and the other had no screen in it. A man by the name of Thompson, who is a wharf-builder and carpenter and contractor on the city front, undertook to have them built for me, and that they should not exceed a certain price, which I do not now remember, and then we furnished a man to build one of them, and shortly afterwards, when the other one was built—I think that man had gone—another man was furnished by him. I think he built the second one through another man, but I am not sure about that. The reason I built them was that I had satisfied myself, by the advice of counsel, that after an examination and showing them plans and sections of the bunkers we had at the Black Diamond mine—I had satisfied myself that in what is called the Roberts screen there was no new element, nothing that entitled him to a patent; that if there was anything it was the fact that it was movable, and I was advised that whatever there was in its being movable or to take coal from a swinging bucket was antici-
pated by the Sparks patent, and that as the Sparks patent
235 has expired I felt safe to construct a machine that would do what we wanted to do without paying a royalty or so much per ton on what went through the machine to Captain Roberts. I thought I was on safe ground and thought that I would stop that expense. I instructed the foreman who was sent to me to get the items about the first machine. I called him and Mr. Scott, who was then my inside and outdoor office man, aside from the bookkeepers and cashier, and I instructed Mr. Scott to see that they were built properly and satisfactorily, and said to him and to this man who was going to do the work, "Now, go up to the Black Dia-

mond landing and examine all of our different screens there that have been used there for so many years." By Black Diamond, I meant in Contra Costa county. I told them to go up and see exactly the principle exactly on which they worked and to build a practical machine on the wharf, a portable one, that would embrace no other principles except what were covered by that machine, and to make it in the same way as near as possible, except that it would be so much smaller than those we were using up yonder. "As to anything else, here is a memorandum of what the Sparks patent was"—I had not seen the patent itself—"and make anything else that you want in it to comply with the Sparks patent, and, if possible, dodge what Captain Roberts claims to be a patent upon which we are paying him money." I was informed that the Sparks patent had then expired. The two machines were built; one had a screen in and one had not.

Q. Mr. Cornwall, at the time of the adjournment of the court last night, you were about to state the fact of your constructing two machines like the model, "Exhibit J," now before you.

236 Now, will you state to the court and jury, if you know, what time it was that those machines were constructed.

A. (Referring to memorandum.) The first one was built in May and June—I think it was commenced in May and completed early in June—in the year 1885. That was the machine that had the screen in. After the commencement of this suit and after the papers were served—I don't now remember the exact date of the service of the papers nor the time the screen was covered, but it was about that time that we covered up this screen. I am not sure about the date. It may have been in May, 1888, but, at any rate, it was immediately after this suit was brought. The title of the case, I think, was The Excelsior Coal Company against The Black Diamond Coal Company. We had many times before this covered up this screen with sheet iron. We covered it up because I had two hoppers. The first hopper that was built had a screen in it, and we found then that the coal we were mining could not be screened profitably. It turned out to be a steam coal and too fine to screen profitably to get any house coal out of it—that is, the object of screening coal is to get the little dirt and dust out of it and preserve the lump coal in a shape to be used profitable for house coal, and we found this was too fine, and instead of getting out fifteen or twenty per cent. of screenings we couldn't get out more than ten or twelve per cent. of lump coal, and we discarded the screen and used it merely for screen coal, and we put on an iron upright which we could take off, and which we afterwards did take off sometimes, and later on, in the fall of 1887, we built a second machine without any screen in it, and that one we have used continuously up to the present time simply as a chute to discharge coal through. The second one was built in October, 1885. It appears that the

237 subpœna in this case was served April 20th, 1887. We covered up the screen in that first machine we constructed immediately after this suit was brought. We permanently covered it up by nailing securely on a sheet that holes drilled in it—a sheet

of sheet iron which covered the whole length of the screen, which was really the whole length of the chute, and put it on securely, and afterwards I gave instructions in addition either to take out the bars which formed the screen or to plank it up on the under side, and I was informed that it would tear it all to pieces to take the bars out, and I said, "Plank it up," and the next time I was down on the wharf and examined it I found that it was apparently securely planked, and it has always been planked since. The plank has never been removed from the machine, to my knowledge, and I have never screened coal through this or any other machine belonging to us since then. Since that time we have used the Excelsior Coal Company's machines—that is, we have not screened a great deal of coal. The vein of coal that we screen has been opened lately, and we don't screen much of that here because it is sold elsewhere; but whenever we do screen we screen through the Excelsior Coal Company's machines, and for that purpose they leave a screen constantly on the wharf—that is, we have moved it once or twice, but they replace it again. Since that date we have paid them ten cents a ton for screenings. We had some screened by them nearly every day before that. We have paid them from ten cents a ton to four cents a ton. We have had coal screened by them as low as four cents, five cents, seven and a half cents, and ten cents. I recollect when Mr. Roberts first built his machine down on Battery street. They place a machine on the wharf in front of the hatch of the ship that
238 was to be unloaded, opposite of the hatch of the ship. They placed it there securely and placed a man with it to receive and handle the coal. They not only screened the coal, but handled the coal and governed and managed the movement of the coal going through it, going through it into carts and wagons. I recollect when and where Mr. Roberts built his first machine. Captain Roberts spoke to me several times about his machine and invited me to go up and look at it when he had it nearly completed, and I did so; went there and looked at it with him. It was in a building on the west side of Battery street, I think—either Sansome or Battery—north of Clay, or it may have been north of Jackson street. I think it was, and, I think, on Battery street, either Battery or Sansome. I think Battery. This was seventeen years ago, in round numbers. I don't remember the exact date. This was before the machine had ever been on the wharves; it was before it was entirely completed. What occurred was this: I examined the machine and talked it over with him. He was at that time transporting coal for us, which reminds me that it was about 1870 or 1871. No, it was after that; I am not sure. He had been transporting coal for us, but I am not sure that he was then. He told me what he was going to do with it. There have been modifications in it since. I don't know what they are and I don't know whether that is the first, second, or third or fourth patent. I saw the machine also when he introduced it into use. My company has been a large shipper of coal and handler of coal on this coast. I think the first machine had no gate at the lower end of the hopper. He told me

that he was going to introduce it into use, and we discussed the matter. We discussed the matter relative to my devices at
239 the Black Diamond coal mine. I said this to Captain Roberts about the machine, that I didn't think it would work satisfactory on the wharf—that is, would be too troublesome; that he would have to take it down and put it up every time, and that it would be too expensive, and that I didn't think he would ever get a patent on it, because there was no element in it but what was used in the Black Diamond mine machine and in all mines where they mined bituminous coal; that there was nothing new in it except the portability. By "the mine" I mean the Black Diamond Coal Company's mine. I spoke to him about that, and he questioned it, and I asked him if he had ever been there or had a man there, and that they were using it up there, and that we were using it up at Bellingham bay. It was just like this model, only as to the size. I think they are working it now; very nearly like that model down there.

Q. Look at Plaintiff's "Exhibit 2."

A. Yes, sir; it was in general form like that. It might have been either one part or another a little larger, but the general idea is there and as to that screen. I have observed the change by putting a gate at the bottom of the hopper, but I don't know when it occurred. I should say it was seven or eight years ago, but I am not positive about that. I don't know when the change was made. I do recollect that for the last few years the machine is used with a lever here and a succession of gates operated by three of four levers running out in front. I don't know the time when this change was made. I am sure that there are none of plaintiff's machines now used on the wharves without a gate at the hopper. I will say that I drove onto all of the wharves where I could find — of the machines at work or standing idle within the last week, and I didn't find any one of the machines of
240 that company but that had these levers and gates there at the bottom of the hopper. I had some photographs taken after going around, which I think you have, which will explain it better than I can tell. There are several levers here that control three or four gates at the bottom, so that they can open the gate that extends part of the way across and let a little coal through and another to let more coal through, and so on—a succession of gates or levers. I do know that the machines they now use have a gate at the bottom of the hopper. It may have been six or seven years and it may have been ten years since they made this change. My attention was not especially called to it. I am not sure as to the date. Recurring to the change of one of my machines from a screen to a solid chute, I will say that after the commencement of this suit the screen was permanently covered up and it was made a permanent and solid chute, so that no coal could be screened in it. It was like Plaintiff's "Exhibit 3," without any screen in it.

Cross-examination:

The WITNESS: I don't know exactly when the Black Diamond Coal Company was incorporated, but this it was in 1860. I became connected with it in 1865 or 1866. I bought some stock at that time. It was incorporated originally for the purpose of
241 operating mines at Mount Diablo. There was a part of its duties. It was not limited to mine at Mount Diablo, but coal-mining business generally. The mine was at the place called Nortonville, in Contra Costa county, on top of a hill, in section 8. It was operating what they called the mine to a limited extent. We made new openings entirely after we took hold of it. In other words, I think we shipped about two thousand tons of coal—fifteen hundred or two thousand tons of coal—for a month and hauled it in wagons from the mine to the river. When I became connected with the mine there was at that time a bunker similar to these there (referring to "Exhibit K"). I had never seen it operated before I became connected with the company. I never went onto the ground before that time. Possibly I made one or two trips up there just a few days before, when I was about to buy it. We operated that machine a short time after we bought it—not more than three months. We continued shipping coal by wagons. We continued the business. The company had some regular business, its regular customers, to whom they were delivering coal. We took the coal out of this place way up on top of the mountain and run it through this machine here and into wagons. In fact, the company had a contract to haul in wagons that didn't expire for several months after we bought the mine, and we delivered to this party that had the contracts to haul, and he hauled from the mine to the San Joaquin river. After we had worked this machine two or three months we took it to pieces, and such of the material as could be used—for instance, the bars of iron that were in the screens and the lips and such of the timber as was available—we worked into a screen which we built a thousand feet down from the top of the mountain. The new machine we built was larger and stronger
242 than the first one. We built a new machine after that, but not after this plan exactly. It was larger, stronger, and broader, so that there were several of those chutes, parallel chutes.

Q. How long after you ceased using this machine like "Exhibit K" was it that you built the new machine?

A. Oh, we commenced the new machine and built it all except adding these iron parts that could be used out of this. We built it while we were using this old machine, so we commenced using the new machine as quick as we quit using the old one. My impression is that the new machine had four or five hoppers and that it had four or five chutes. That you may understand it I will make a drawing. I don't know that I can make it very plain, but I will try. Now, considering that the top of the bunker (pointing to drawing made by witness on the board) and this representing this point here where that car runs. I am not a skilled draughtsman, as you will probably observe. These are supposed to represent three-foot-

gauge railroad tracks (referring to lines on blackboard) coming from a tunnel in the mine from which the coal comes. There are two parallel tracks at a certain point and then they separated, and the cars were coming out in a constant stream. One car would come in there (indicating) and another there and another there, and sometimes one man—not always one man, sometimes two men—would stand here as topman, and as the cars came in here to switch one of them would attend that switch while the car would be coming back to a certain point, and a car would be dumped into there, different dumps, and from each one of them was let down a place like that. I am speaking now of our new bunker. It didn't terminate in a building by itself, but it came down, and at the end of
213 the chute was a lift which protected the coal, and here was a screen and here was a gate and here was another one about there (indicating) and another one at the lower part of the screen or on the screen. Some of them extended along there. These chutes were sheet iron clear down to where they came down to the building, the full width of these openings up here sheet iron, and the planks between them. Sometimes they were not sheet iron, but the coal—after it reached down to a certain point, for a distance until it got by the screen, there were side pieces which kept the coal in line, and after you get to a certain point it was all one space they went into, but opposite the space where the coal slid most rapidly was where the cars went under to receive the coal. Yes; we had a system of railroad switches so that you could go to any hopper you wanted to. Sometimes one would go into one and the second one would follow and the other would switch. We had four or five of these hoppers. There was a net-work of switches going to that place to deliver coal. We had the same number of chutes and screens that there were of these places above, namely, hoppers. When I say "these places" I mean hoppers; yes, sir. The distance of the chute that was a screen varied sometimes. I should think those screens were—I now speak from memory—I think generally they were ten or twelve or fourteen feet long, maybe; not less than that. The angle of inclination of those screens was between thirty-three and thirty-eight degrees somewhere; I don't now remember. I will explain that by saying that we discovered that one was possibly a little less than thirty-three degrees, because eventually we built one very much larger, and we increased the angle somewhat. As to gates, there was a gate to check the coal when it first entered the screen at the lower end, but I
214 think on the screen above the end was another gate which checked the coal. If the coal was very foul or very bony, the gate was closed or stopped entirely until the boy could take it out. There was another gate below this place here (indicating). There were two or three gates. This place (indicating) was a sort of slide instead of a gate and was above the screen. The screen extended up pretty close to the gate, and there was a gate below it to check the coal, and as it went down it spread naturally, and the fuller the bunker got the slower it run always. The object of the gates was to check the flow of the coal when it was desirable to

stop it, and we desired to stop it when it was too foul—generally when there was other materials in it that had to be taken out—when there was coal that had rock or shale in it. If the boys saw but one or two pieces, they would pick them out as it passed by slowly, and if there was more than that he would fetch this lever down and close the gate and check the flow of the coal until he got it out. This was done by boys, and the number of boys was according to the amount going through, which was regulated, of course, according to what the market would take. There were always more or less boys there. After the coal got off of the screen it went into the bunker. The combined length of the screen and chute in that machine—I think it was out forty feet. It may have been a little more or a little less. I think those bunkers carried six hundred tons of screened coal and about two hundred tons of screenings under it. The aggregate capacity, my recollection is, was six hundred tons. It may have been less, but it wasn't more. The hopper, so called, was not a square box. There was nothing above the bridge here; there was in that space. Now—I am only
245 guessing at it—three or four cars and chutes that they had there. Our cars were then larger than when this little thing was used up on top of the mountain. It was built out of timbers. The receptacle at the top of the chute was not a box. It was a continuous chute down here to where the coal was delivered here, and there was no box here. This part was vertical here—a little space where a car came and tipped over—and there was from the roof down here timbers in either side, and the lower four or five feet—if it was this door here—that made a space partitioned off from the rest similar to the top of this hopper in complainant's exhibit—nearer the shape of that. Well, here is one that is nearer to the shape that it was. I would call that a box. It was nearer in shape of the hopper of the Sparks exhibit. The timbers which composed the bunker were from ten to twelve inches square—the upright timbers—and, I think, those upright timbers ran clear up to the roof, and this gate here slid up and down—this gate at the bottom of the hopper slid up and came down between the two. Taking a front view of it, it would be like that (indicating). Now, the gate slid up and down on those two timbers. I think there was another timber inside of this one and another inside of that, only it found a groove in which the gate worked up and down. It was a smoothly finished thing—that sheet-iron business—and the whole thing worked by a lever, which hoisted it up or let it down. It all had a roof over it. I suppose that building was forty feet across the top or maybe thirty or maybe thirty-five. I think the system of bunkers cost us about three thousand dollars—twenty-five hundred or three thousand dollars. The hopper when full would hold from three to four cars of coal, and a car would hold twenty-two hundred and forty pounds, so that it would hold from three to four tons at a time. We used this device after it was constructed from five to six years—that is, we shipped all our coal
246 through it and another one below it still smaller; one that we shipped from another opening. Five or six years after we

made the principle opening of the mine at another point—without reference to my books I can't tell just how long it was and I haven't the data before me now—we made the principle opening perhaps about fifteen hundred feet from where this was, on the other side of the ravine, and over to another hill, where we sank a vertical shaft, a very large and expensive one, and put up heavy machinery and built another one of these things on practically the same plan, some changes, and when we got that shaft sunk we built a bunker that would hold about two thousand tons of coal or more, and after that we found occasionally in some parts of the mine—all the openings connected underground—and in some parts of the mine it was found to be convenient to still bring the coal out where it came through this set of chutes and bunkers which I have referred to. Then we stopped using this bunker, and I believe all the essential parts were taken out and taken away. All the irons were taken down and taken away from there, all the parts we could use, about in 1885, and we abandoned the place for coal mining, and since then we have sold the timbers and all the other materials there, and whether there are any fragments of it left standing by the parties who bought it or not I don't know. I haven't been up there for some years now. The first bunkers at Bellingham bay were built before I had any connection with this company, but I think it was in 1859 or 1860 that the first one was built. My first knowledge of them was no further than that I was up at Bellingham Bay and saw the operations there once or twice. That is a separate corporation from the Black Diamond Coal Company. It was in 1865 or 1866 that I had my first connection with the Bellington Bay Company.

247 I have seen the Bellington Bay works every year from 1866 down to the present time, but the mine has been closed now several years, and the bunker is dilapidated and has all gone to pieces, damaged by the torredo. I don't know who built the bunker at the Black Diamond mine, represented by the drawing, "Exhibit K," but the ones that were built there to which I have been testifying was built under the superintendence of Morgan Morgans, who was superintendent of the mine at that time. We always kept a boss carpenter and builder, and generally an assistant, another carpenter, who did timbering and underground work, and all that sort of thing, and I think this bunker was built by the carpenters of the mine. I don't know how many worked on it. I think there were only two that belonged to the mine, but then a great deal of it is that rough kind of work that men employed around the mine could be put to. It was built by the carpenter under the superintendence of Mr. Morgans. Our company first commenced bringing coal to San Francisco in 1866 or the latter part of 1865; brought them by schooners, and shortly afterwards, before the end of 1866, by tugboat and barges. The schooners were chartered schooners, and they unloaded the coal themselves. The crews of the schooners unloaded them. Part of their pay as transportation was to unload them. They unloaded them by swinging lines and buckets, and dumped the coal on the wharf. They continue that method of unloading vessels up to the present time; but besides the schooners we very

shortly built some barges especially for the trade, and we built a tug-boat, and a majority of the coal, after we got that completed—unless a schooner was going to some other wharf—was brought in barges and unloaded at our wharf. I haven't the data from which to state when we first commenced using Captain Roberts' machine for unloading
248 coal. I think it was immediately after he got his machine on the wharf, or it wasn't a great while after; but we were not using that on Mount Diablo coal. I don't think we ever did screen any Mount Diablo coal through screens here. As far as I know, we never did; but we were bringing Bellingham Bay coal down at that time; Green River coal only lately. We patronized Captain Roberts' machine as long as we were shipping any Bellingham Bay coal. We ran there a period of about five years and maybe a little more. I cannot tell you the time exactly. Captain Roberts could tell you better than I could. It was quite a period of time. I paid him ten cents a ton for a portion of the coal he screened. That is the highest price I paid him. I paid him as low as four cents a ton. We have his receipts or bills to that effect. I don't know that that is a reduction, four cents a ton. It may have been the first coal that we paid him for. I know I have paid him all sorts of prices—four cents, five cents, seven and a half cents, and ten cents; at least that is my recollection, and I will produce his signature or the signature of his managers for the facts. I don't think I ever delivered any unscreened coal through a machine of Captain Roberts', but if I ever did it was under some peculiar circumstances, when the screen was there and we would have to move the screen out of the way or something. That is my memory of it. I don't remember of ever having any delivered through his hopper that was not for the purpose of screening it. An interval of perhaps five years occurred after I stopped using his machines—I am not sure about that—before we commenced shipping coal here from Green river, and then we built our first screen. The reason we did not continue using Roberts' machine was that the most of the coal we shipped and delivered was steam coal that
249 we didn't screen. That is perhaps the principal reason. Most of it was steam coal and the screen was not an average to us. The reason we built our machines was because I never wanted to screen a great deal of coal; but when we got these new mines opened I supposed we would want to screen a great deal of coal, and I never believed that Captain Roberts had any valid patents and thought there was no reason to use his screen except when I wanted to screen a little coal, and I thought it was cheaper to have a screen that was on the ground and a man who understood how to work it than it was to build another machine; but when we got this mine opened at Green river we thought we would build our own machines, for we thought we would have a great deal of coal to screen. I showed Mr. Roberts when he was building the machine that there wasn't anything new in it. I don't think anybody advised me about it at that time, but I have been advised by attorneys since that, that I have submitted the facts to, who said there was no new combination or anything new in it. I think I have

stated that I had been so advised. I think Judge Boalt advised me as to that. I know I talked the matter over with him several times. I am not sure whether I knew of a suit being brought by Roberts against Flannigan or not. I knew that he had brought a suit against Chandler and I knew that later on he had brought a suit against McKinley and some others, and Flannigan may have been a party defendant in one of those suits, but I am not sure. I don't know whether I was a witness. I know that at the solicitation of Captain Roberts as to what he was charging for screening coal here once I consented to come into court, but I don't think I testified as a witness.

250 Q. Mr. Cornwall, you spoke on your direct examination of using a metal bottom or blank in your first machine sometimes when you didn't want to screen your coal. Now, I will put a metal blank in this plaintiff's model, "Exhibit 2," so as to cover up the bottom of the screen, and ask you if that was about the way you did with that first machine.

A. It was not in that shape, it was in this shape, and the metal blank that we put in just covered—well, it was the shape of this and just fitted in. It was made of an iron plate. I suppose it is a little thicker; it is not the ordinary thin sheet iron. It is an iron plate that is perhaps, I guess, what is called No. 10 iron, and possibly No. 8. It could be taken out. When it was out the machine was a screen, and when it was in I think it is correct to call it a chute, or a screen with a sheet-iron cover over it or iron plate over it. This was used for the purpose of running coal through that we didn't want to screen. We very soon found that we had no house coal; that the coal we were sending was a steam coal, and we put that plate in there and fastened it there and run it that way as a chute. We screened about one thousand tons of coal, I think. I then went to work and made a second machine which was purely a chute. When the metal blank was in, of course, you couldn't screen coal; it acted as a chute. In our second machine we had no screen, but the principle was all the same. It may have been a little more convenient. I suppose it was. One machine screened the coal and the other did not. One was to screen the coal if it didn't have that cover over it and the other was not. If they had not been of use to our company I should not have used them. The character of the coal on this coast is about what it is in the Atlantic States or in England, except the anthracite coal of Pennsyl-

251 vania, which is of an entirely different character and requires to be broken up with machinery instead of being separated. The coal on this coast is bituminous. Bituminous coal, as distinguished from anthracite, is very soft. I think about two-thirds of the coal mined in Pennsylvania is anthracite, but there is none mined anywhere else in the United States, so far as the census shows. Coal brought to San Francisco comes by rail and by water both. Mount Diablo coal is now brought here by rail most of it, but some of it is not. There is coal comes here by rail from Ione valley sometimes, and last year and this year there has coal come here by rail from east of the Sierra Nevada mountains. Very much more comes

here by water than by rail. There was a good deal of coal came here this year from Wyoming and Colorado. I don't know the exact amount. The larger part of it is brought here by sailing vessels and some by steamers. Some of our coals are lignite and some of the- slack very badly, commencing to slack as soon as they are exposed to the air, and others are not materially affected by contact with the air. There is no different state of facts existing in the handling of coal on the Pacific coast than that which exists in the Eastern States, except in the case of anthracite coal in the State of Pennsylvania. The coal in the East is not altogether handled by cars. A large portion of the coal, a majority of the coal, from Pennsylvania is carried by cars until it reaches tide water, say Philadelphia, and then it is shipped by sailing vessels, ships, and steamers to Boston and other places, and some is brought to this coast. The majority of it is carried by rail where they can ship it from Philadelphia and other places. It is carried by cars to the shipping point and then is carried by water to Boston, New York, and other places.

272 The advantage of using our chute is that we handle coal with our own teams instead of hiring teams—that is, the majority of it—and it enables us—it saves our teamsters extra work, and they can make a few more trips in the course of the day sometimes.

(By Mr. BOONE:)

Q. In other words, you can keep your ship unloading while the carting away is going on and the operation of unloading is continued?

A. No, sir; that is not true. These hoppers hold so little coal that the question of keeping a ship at work depends entirely upon the number of teams we are using. It was stated by the plaintiff in this suit and I suppose I have a right to—I don't know whether I have or not—but it was stated by the plaintiff that it facilitated the discharging of vessels in time saved; that before those machines were in operation it would take a vessel—they are frequently detained here thirty days to discharge—and afterwards they would discharge in a very few days. Now, in point of fact, it does not make an hour's difference in the dispatch of a ship. That question depends wholly upon the number of teams. The ship pays in every instance for discharging her cargo. It is part of the contract of the ship to pay for discharging the cargo on the wharf, or, if the consignee prefers, to put it into a vessel alongside the ship, but it is a part of the contract to deliver it at their tackle ends, and they always claim they can discharge more in a day than they can in one of these machines. The time that the ship is detained in discharging depends upon the number of teams and the shovelers in handling the coal away from the ship. When ships were detained near thirty days, which used to be and is, I think, now the ordinary time a consignee has the right to detain

273 them without demurrage, is when they want to make a coal-house of the ship, instead of hauling it into the yard, and then haul it from there to the consignee, and the detention occurs

out of trying to save one cartage. There is one thing, perhaps, I ought to speak of, and that is the method of using a screen alternately with converting the same thing into a chute without a screen, as is common in the coal mines, as any man who knows anything about coal mining will tell you. It has been done from time immemorial, screened coal to one customer and unscreened coal to another customer, and in these bunkers, where they are built large enough to do business on a large scale, there are compartments in the bunkers that run all the way down, partitions between these places here, shutting off a portion of them, so that separate qualities of coal in cases of necessity can be shipped from them, screened or unscreened, and there are always in coal mines thick sheets of galvanized iron to be placed over the screens whenever it is desired to deliver coal unscreened. This has been the custom from *the* immemorial in all cases except in the anthracite regions, and they deliver different qualities of coal, but whether in that way or not I am not prepared to say. It does not take any longer time to deliver the coal where it is dumped on the wharf, because the party owning the parts would have a shoveler, and sometimes three or four if they were in a hurry, but it would take the labor of the laborers to shovel, whereas now the driver drives his cart up and the coal is put into his cart for him. If you want to move your coal rapidly it is a saving of expense not to employ these shovelers, but it sometimes happens that one of these machines standing alongside of a ship will stand there for a long time, because the hopper is full and the ship is idle. Yes; I did visit the Eastern States and saw

254 them handling coal. I never saw one of these machines there. There they dump coal on the wharves. I know of no better way to explain how it is done in the East than by referring you to the machines of the Oregon Improvement Company down on the Beale-street wharf, here in this city. There are several different ways. It is called Hunt's machines for handling coal, and they take it up to a bunker and run it around to different points and distribute it. I have cuts of them and can bring them up here and show them. I do not know of any city ordinance prohibiting you from dumping coal on the wharf. The city has no control of the wharves; it is the harbor commissioners. There are some wharves here that are old and eaten by the torredo, and I believe they have a rule to not allow you to put on a pile of more than seventy-five tons—that is, your pile mustn't reach beyond that—and if there are no carts hauling it away the wharfinger will tell you you must move your ship along and discharge in another spot. Of course, the pile of coal would not be there if you were taking it away all the time, whether you had a machine there or not. You could continue until you got whatever the wharfinger would let you put on. I remember once of a wharf breaking in and I lost one hundred and fifty tons of coal. I claimed that the wharf did not break in by reason of the weight of the coal. I claimed that it broke from the surging of a ship on it, and they had a lot of pig-iron on it. The facts were that I had a large amount of coal on there and there was some pig-iron on it and the wharf went down,

and it was proved afterwards, when the piles were examined and submitted to the harbor commissioners, the piles were found to be honey-combed with the torredo and there was no strength in them, and I believe the thing was compromised in some way. I
255 paid nothing for the breakage. I don't know of any law that prevents a wharf from breaking down when it is too heavily loaded.

Examination-in-chief of PETER BARGER, a witness called on behalf of the defendant:

The WITNESS: My name is Peter Barger. I reside in Oakland, California. I have lived in California thirty-two years; am a machinist and mechanical engineer. I served a regular apprenticeship to that trade. I learned my trade in the Lowell locomotive works, in Massachusetts. I have been engaged for the last thirty-two years principally in building and erecting machinery. I have been employed by the Black Diamond coal works, in Contra Costa county. I was employed there, I think, from 1872 to 1882. I was the superintendent. I superintended the general shipping of the coal and keeping up the repairs of the cars, and I built two new plans for handling and dumping the coal, and had a great deal of leisure time besides. The character of the machinery there was about the average that was in use at that time. There was lots of steam machinery there. Steam machinery was used for hauling the cars to the mine, locomotives, and we used steam-engines in the mine for hoisting the coal and for pumping water. In the old mine the coal was hoisted through a slope on an incline by drums actuated by steam power, and a shaft was worked also by a double-acting hoister direct engine. We had two ways of running the coal out on the dump or bunker. In the old works it was
256 done by pushing the cars on the tracks and switching them off to the different bunkers, and in the new hoisting works we used a cable that was actuated by a wheel and sheave pulleys and which also brought back the empty cars.

Q. You told me you were a mechanical engineer. Have you been an inventor?

A. Yes, sir.

Q. A patentee?

A. Yes, sir.

Q. How many patents did you ever obtain, if any?

A. Four.

Q. For what?

A. Well, one was for evaporating sorghum molasses and one was for an automatic head-block for saws and one was for a hub for wheels, for wagon wheels and for all wheels, and one was the celebrated railway track that is now being used all over the world.

Q. Have you seen Defendant's "Exhibit K"?

A. Yes, sir; I have, and I have examined it. I have seen the device that that drawing purports to represent. I first saw it at a place called Nortonville, in Contra Costa county. I think I can

describe that machine as it was exhibited there (referring to the drawing, Defendant's "Exhibit K"). Where this car is represented here there is a trestle-work which carries a track, and this trestle leads on a slope to the house where the coal is brought up an incline. At a certain distance from where this car is dumped there are switches with a series of tracks running to different parts of this bin. This car is run out here and the wheels of the car running on the track; the track is bent up like the runner of a sled to keep the car from going any further, and when it comes here this part of the track is actuated on a lever,
257 and it tip- over, and in tipping over a latch is worked automatically and is tripped, which opens the door of the car and allows the coal to run into the hopper. It is made with a shed roof over it, and at a certain distance from where the car dumps there is a bulk-head with a shifting gate in that bulk-head to retard the coal in going to the screen. It is actuated by a rope with a fulcrum here, and boys are placed there to pick out the waste pieces, and if it is going too fast for them to pick them out they retard the motion by another gate, which is worked by a rope working in between two upright guards. There is more than one gate. The object of having more than one is to check the coal so as to keep it as nearly even on the face as you can. At the lower end of the screen there was a gate that was worked by a lever and pulleys like an apron. The coal through that flowed into the cars that run on our trains underneath the bunkers. There was a chute with a lip on it. It was — swinging chute that was swung on a pivot that extended out with sides and a nose-piece, and you could lift it and depress it at will, and if you lifted it you would check the flow of coal into the bunker. They were divided up into equal spaces and met about the center of each car, and you put the train where you wanted it and a brakeman would lower one of these chutes down and load the cars and then raise the chute up. There was a hopper in that machine and there was a gate in the hopper. As I explained, there was a bulk-head with a sliding gate actuated by a lever, with a rope long enough to reach, so that these boys, when they wanted more coal, could open the gate and let more through. Right under the hopper and from that point to the bunker there was a screen. There were two or three kinds
258 of screens there. Some were made of bar iron and some were made of cast iron. There were side boards on the screens to keep the coal in, and they were eight or ten inches high. Under the first screen there was another screen to receive the screenings which separated the slack from those screenings and divided them off with dividers and sent it into bunkers at different localities. The bony coal was sorted from the screen by the boys. It is a fact that all coal is assorted, more or less, at the mine. The object of assorting is to get a better quality of coal. The bone coal, so called, is of no use and is thrown away. We screened our coal as well as removing the bony coal from it. We screened it to divide the different qualities, to divide the coarse coal from the fine, and the screenings passed into the depository for screenings. The screen-

ings are used for flour mills, and so forth—that is, for steam purposes. I have examined the second reissue of Roberts' patent upon which this suit was brought. Plaintiff's "Exhibit 2" purports to be a model of that. I have also examined the so-called Sparks patents of 1857 and 1859. (The witness picked out Plaintiff's "Exhibit 12" as the model of the Sparks' patent.)

Q. Now, will you look at a copy of "Engineering," a magazine entitled "Engineering," published April 26th, 1876, which I will state for the instruction of counsel contains a description and copy of the Plimsoll patent with the specifications and drawings, and ask you if you have ever examined that?

A. I have.

Q. Mr. Barger, will you take the stick there and point out to the jury the coal receptacle, and give it a name, for the receiving of coal in Plaintiff's "Exhibit 2" and Plaintiff's "Exhibit 12,"
259 the so-called hopper? Point them out to the jury.

A. In those two machines?

Q. Yes; in these two machines.

A. (The witness points.)

Q. Now, point on the map if there is such a thing in Defendant's "Exhibit K" on the map there.

A. Well, he shows this hopper here, only it is not illustrated in that way.

Q. That is not my question. I want to know whether you find the same thing, or substantially the same thing, in those three devices, namely, the hopper.

Mr. BOONE: I propose to enter an objection against any use of the drawing or sketch "Exhibit K 2," on the ground that it is not shown to be a correct representation of any machine ever known or constructed. The testimony of the defendants themselves shows that it is not a correct representation of the machine which it purports to be a representation of. Mr. Cornwall himself testified that it was not correct, and Mr. Barger, in his description this morning of the machine, has shown the actual machine to have been quite different from the machine represented by the exhibit. Therefore—should enter an objection to any examination or comparison of that exhibit with plaintiff's patented machine.

The COURT: I think you ought to confine the testimony of the witness to a comparison of those models that have been shown to be correct.

Exception No. 18.—(The court ruled the question out, and defendant's counsel noted an exception.)

The WITNESS: I have said that I first went to the Black Diamond coal mine in 1872, and I found a coal-screening apparatus there then, which I have already thoroughly described. That device had a hopper, a car to dump into the hopper,
260 and a screen. It had a receptacle or hopper—a receptacle made in the shape of a chute or hopper—to receive the coal from the car, with a gate upon a perpendicular division—bulk-

head—to retain the coal in that receptacle as it was being dumped from the car. I find in "Exhibit 2" a receptacle for receiving coal into the machine—a hopper for receiving the coal. These bunkers at the Black Diamond coal mine were built when I went there in 1872 and had been in use for years before I got there. I saw the coal come from there and I passed by there many a time and consumed many loaded vessels of coal where I bought the coal by the cargo before 1872. I refer to the dates 1866 and 1867 and 1868, when I was in the foundry business in Stockton. I used to buy my coal from the Black Diamond Company by the cargo and made trips there.

Q. Are you able now to testify exactly how that machine was constructed at the Black Diamond coal mine in 1872, in all its details?

A. I am able to testify how it was in 1872, when I went there and took charge. I did see the machine there in 1872. It was used for the purpose of screening coal that is claimed to be represented in "Exhibit K." I had seen it prior to that—some two or three years prior to that—but not to examine it as I did when I became interested. I know it was the same style of bunker. I went between 1871 and 1872; I think it was in April, 1872. I think so; I am not sure, though. The bunkers that were used there when I first went there was the Mount Hope bunker; small bunkers. We dumped the coal from the cars off of tracks that switched. We dumped it into a hopper—a receptacle or whatever you may call it—so that the carman could return without interruption or being delayed. The space or the size was such that it would
261 receive half a dozen or more car-loads of coal without choking it up or overrunning the gate. There was a gate to this bulk-head, which kept the coal from going over the screen and was actuated and operated by those boys that were employed to clean and assort the coal as it passed over these screens. I find in Plaintiff's "Exhibit 2" the receiving receptacle here or hopper, as you may call it. I found a hopper here for receiving the coal. I find a screen here upon an incline for screening it and a gate here to retard it. I found the same device at the Black Diamond mine, only on an enlarged scale, connected with the bunker. The bunker was used for a receptacle to hold the different kinds of coal after they had been separated and cleaned by passing over the screens. The machine at the Black Diamond coal mine cleaned the coal. It separated the qualities and it enabled the boys who picked out the waste, the bony coal and rock, and so forth, to throw it out into the waste dump. It screened the coal. Plaintiff's machine answers the same purpose as far as screening the coal is concerned, and also leading it to a discharge, either in a cart, dray, or bin, by the actuating of the gate. I see no difference, only one is portable and the other is stationary; one is large and the other is miniature. I have examined the Sparks machine and the model of his patent of 1865. I find a hopper, an inclined screen, with a gate and double screen, a subsidiary screen or a second screen for receiving according to the mesh that might be placed there to grade the coal. In plaintiff's

patent, "Exhibit 1," upon which this suit was brought, there is a subsidiary screen which is at right angles to the other main screen. Supposing this was leading to the east, that would be leading to the north. It is arranged in relation to the Sparks patent as follows: The Sparks patent has the subsidiary screen only upon a different
262 angle or a different line or angle from a square. In the plaintiff's patent I cannot see what the object is, unless it is for either making a finer article. It depends altogether upon the mesh that may be used upon those screens—that is, the size of the apertures in the screens—the size of the openings. For instance, if he wanted to make a second grade of screenings from a first grade passing over the first screen he would do so by a different mesh in the other screen. I find a subsidiary screen in plaintiff's patent. I find a subsidiary screen in the Sparks patent, except that it is sitting at a different angle. Referring now to the Plimsoll patent, I find here a hopper, a car, an inclined plane, and a screen and a gate.

Q. Now, Mr. Barger, I wish you would state to the court and jury whether a mechanic skilled in his art could make a portable coal-screening apparatus like that of Plaintiff's "Exhibit 2" without the exercise of his inventive faculties and after having examined the screening apparatus in use at the Black Diamond coal works in 1866 and up to 1872, to which you have testified.

A. Any common carpenter could reduce it. It is merely a reduction of sizes, so far as the principle is concerned. So far as I can see, the principles involved are the same. The same purposes are in use. It is merely reducing it to a portable instead of a large stationary plant.

Q. I now hand you Defendant's "Exhibit J"—the Sparks model—and I will ask you to examine that and state to the court and jury whether, in your opinion, a skilled mechanic after having examined that Sparks patent as represented by the model before you could have made plaintiff's machine without the exercise of his inventive faculties.

A. I should judge so.

263 Q. You see by looking at the model "Exhibit J" that the gate, so called, is at the bottom of the hopper. You see by looking at the model "Exhibit 2" of plaintiff's machine that you find the gate at the bottom of the screen or reservoir, so called. I will ask you to state to the court and jury if, in your opinion, it would require the exercise of inventive faculties for a skilled mechanic to make a change of those gates from the bottom of the hopper to the bottom of the screen or reservoir or *vice versa*.

A. No, sir; it is very simple.

Q. State what the purposes are, whether or not the purposes are the same in both instances; and, if not, what the purposes are.

A. Well, the purposes are the same in the full extent, although having the gate at the top holds the coal there instead of holding it in the reservoir which has the screen. The only difference is one holds is a little higher up than the other before it is screened. The other holds it below the screen and it is actuated there to load,

and if there was none there and only one above you could work the same lever or the same screen by leverage from the ground just the same in one place as you would in the other. I can't see where the advantage is any more than by having the gate below you have more space to receive a larger amount of coal. The facts are that if the hopper of this machine (indicating) was made as large as the receptacle of that machine both would hold the same amount of coal. Both machines are made for the same purpose, namely, to screen coal. The difference I know between the two is the application of these dumpers or gates. One is above the hopper and the other is at the bottom of the screen proper. That is the only difference. As far as the device or the purposes for which they are used,

264 they are the same, only one performs the work by being actuated by a damper above and the other performs it by a damper below. So far as the effect upon the screening of the coal or the screening capacity by reason of moving the gate goes, that would depend upon the mesh and the incline of the screen and upon the rapidity with which the coal passed and also the hardness and the quality of coal. It is a matter that no man could answer directly and correctly without knowing all the circumstances under which it existed. Ordinary coal mined on the Pacific slope is more or less mixed with foreign substances like slate and bony coal and sandstone. The general character of California coal is soft. The fact that it is soft is the reason that it is more apt to break into fine particles when handled. I think it would not require any inventive faculty for a person who was skilled in the art to which this appertains to take the Plaintiff's Exhibit 2, his patent, his device, and place a solid metal covering in place of the screen and thus convert it into a chute. It would not involve much brain-work. The simply requirement would suggest it to the most common kind of a person. The idea of stopping the screenings from running through the wires—a blank would stop it up and thus make it into a chute instead of a screen. We used galvanized-iron false bottoms at the Black Diamond for shutting off or increasing the screening capacity. Sometimes coal was harder than at other times, according to the different spots in the vein. The softest would require more screening surface than the hard coal and it would facilitate matters and quicken it by not having so much opening. This was done during the time that I was employed for the company.

265 Cross-examination of PETER BARGER.

By Mr. BOONE:

Q. Mr. Barger, you say that in your opinion it would not require any invention for any person, skilled mechanic, having seen one of these devices for handling coal that was in use at the Black Diamond to construct a machine like the plaintiff's which would operate in the way the plaintiff's does and perform the results which the plaintiff's machine does.

A. I don't know the result that is claimed for the machine. I

know that the device for screening coal being done by gravitation, the velocity either increased or diminished, according to the incline or the angle. The head or the quantity kept by the hopper, actuated by a damper or gate, all perform the same offices. They may do it with different rapidity, according to their size, inclines, and larg-ness of their screening capacity, the openings. I can't see wherein between the two machines or the arrangements that were used at Balck Diamond—where the difference in operation comes in only as regards quantity and speed. I have considered this as a screening apparatus used for separating coal for *p*rotable purposes, and I don't think it would require any invention for a skilled mechanic to construct and apply a metal blank in a machine of that character. I think that instinct would teach anybody that. I am an inventor. I have got out a good many patents. I have one on a rail.

Q. That invention of yours as to a rail is represented in a measure by that drawing I made on the board?

A. Very much distorted. Yes; the half rail had a V groove in it, in which an extension from the head portion fitted. It left an opening for a telegraph wire. I found when I applied for a
266 patent that the head and foot separation of the rail had been previously patented. That little hole in the middle, as you say, is one of the most important parts of the whole system. That little space is not the invention. The telegraph and cable is in addition. It is a combination. In my patent we claimed that the bottom rail should be of iron and the top rail of steel, and by making the bottom iron and not being carbonized like the top rail that insured safe*ly* to the traveling public. You couldn't break the lower rail at the same time that the upper one would break; being homogeneous but soft iron, it insured safety. The very fact of bringing that space there insured the head of the upper rail to have a bearing upon these two columns, which gave rapidity and strength to the lower rail. Without that the system was of no account, which has already been proven by several of the smartest engineers in the United States.

Mr. Boone: I want you to understand I am not contending that your patent is invalid or not a good patent, but I simply ask you——

A. You were trying to simplify the construction and use me upon my own patents to show the similarity of others was so near alike, and I wanted so show to this jury the importance of the difference between the two, where they come in. This space below the head of the upper rail is the essential feature of my patent which makes that rail superior to anything in our patent. It is not the only feature. The inclined sides is another claim in it. I have two patents on these devices. I think there are three claims. You ought to know, Mr. Boone, you took them out. I can't see where the invention comes in in plaintiff's device in this case. It is merely reducing a bunker and these screens to a small portable apparatus to perform the same work. The bunker receives
267 it from the car. This portable machine receives it from the

tub. One is portable and made for the purpose of preventing the dumping of coal upon the wharf; facility of running a car under it and loading up. The bunker is made the same way to receive the coal and keep the cars and coal going from the mine, and the bunker is made to receive it to accommodate the cars from which you load. Now, where is the difference? One is on a large scale and the other is in miniature style. Exhibit K describes a machine that is used for screening coal. It is adapted for use in a coal mine. Plaintiff's machine is a portable machine. It depends altogether upon the height which you tip the bucket what good results it performs to the coal.

By Mr. BOONE:

Q. Do you know how coal was unloaded on the wharf before this machine was invented?

A. Yes, sir; some had long chutes and dumped it in chutes and slid it upon the wharf, in this city; others dumped it immediately upon the wharf, these large English ships; these long iron chutes, some twenty or twenty-five feet long. There is old relics of them now at the foot of Broadway wharf; put them on their gangway and hoisted their coal and dumped it in these chutes which slid down on the wharf. As for the dumping of coal from a bucket onto the wharf, as to the height of the bucket, it varied according to the quickness of the engineer that handled it. Sometimes it would be ten feet above the wharf, sometimes twenty-five feet, sometimes five. This bucket was swinging from the yard-arm of a ship and was lowered down in dumping coal. The bucket was worked upon an arm or yard, a boom, like, and it was raised and lowered and this would swing so as to come over the top of the hatches or center of the hatches, and the bucket was lowered. It was raised up and this arm was swung around and it was tipped by a rope, and certain lowering a certain dis-
268 tance tipped the bucket. It was lowered sometimes within ten feet, sometimes within five, and sometimes twenty, just according to the skill of the parties handling. I have this in my mind, and it is the only way I now recollect. I remember this very particularly because of an accident attending it by reason of the blowing up of a donkey engine. I don't know it as a fact that the usual custom was to dump the bucket or tub while it was twenty or thirty feet above the wharf. I don't say that I never saw it done. I might have seen it done, but don't know it as a fact. I can't say that I can remember everything that I have seen done in that line. As to the effect that it would have to dump coal that distance upon the wharf would depend upon the kind of coal. Very soft coal, like California and Washington coal, it would smash it very much. As to the effect of dumping coal in this machine of plaintiff's or on the wharf, it would depend entirely upon the distance of the bucket or tub from either the tub or the hopper. Of course, if you dump on a pile of coal it will not injure it as badly as it will if it is dumped on anything more hard, like a hopper or a wharf. The pile of coal is not like a solid substance. Of course, handling soft coal, some

breaks anyway. Where you have a solid framework of boards to dump your coal on, every time you discharge it, of course, it breaks by handling—breaks a good deal. The plaintiff's machine has a receiving hopper made with flaring sides. Defendant's machine has flaring sides also. The Sparks machine has perpendicular sides and flaring bottoms. Defendant's Exhibit K pretends to represent a receptacle or hopper for dumping a car of coal over a screen. The car comes to a stop on the track and then dumps the coal.
269 The car is standing still when it is being dumped; after it is dumped the car comes up to a level and then pulls away. Yes; I have looked through the Sparks machine. The platform I find here on the Sparks machine is to form a heading to the frame to support it and a platform for a man to stand on and to take the tub of coal as it swings up and empty it into that box. The platform is thus used to stand on by the man. We used the same thing. We have a platform there to stand on. In the Sparks machine the hopper has perpendicular sides and inclined bottoms. In Exhibit K the Black Diamond has inclined sides and inclined bottoms. We dump our coal upon that inclined plane and the perpendicular bulkhead. I am talking about the 72 machine. The upper end of that was a hopper—that is, what I call a hopper.

The witness, describing the Black Diamond machine, says:

Yes; that shows the cubby-hole of the shed. There is the car as it comes from the tramway from the slope and it is dumping on this oscillating platform here. It throws the coal upon this chute—this hopper receptacle. This has angling sides. Here is the face of it. Here is the car dumped right here. Of course, as the coal falls into the hopper it fills it up until its gravitation carries it down to this gate and it is large enough there to receive half a dozen or more cars. This may be called the hopper and receptacle. In the Black Diamond machine the boys handled this gate by a lever. The coal is cleaned as it passes from one gate to the other. I have seen the tubs when they were emptied on this machine on the wharf. Immediately as the engineer starts to lower the tub—the very act of lowering a body brings it to an equilibrium—a stand-still, almost;
270 a stand-still, so far as side vibration is concerned. There is a certain amount of swing to the boom. There is a little swing to it on account of the manipulating of the guys, and so forth, but I have seen them dumped almost perpendicular. The very act of starting the tub down steadies that side vibration. I have never dumped coal, but I have dumped rock on the same principle. I never dumped into a machine of this character; no, sir. As to whether, if you dumped into a hopper with perpendicular sides, whether it would scatter over the sides or not would depend upon the size of the square and the amount of vibration of the tub. I can see this has this advantage as to flaring sides to the hopper, that it accommodates itself to vary a vibrating tub.

Q. Now, we will suppose that the upper hopper of plaintiff's machine is already full of coal when a tubful is dumped. What

effect would the dumping of that tubful of coal have upon the coal already in that hopper?

A. Well, that would depend upon the coarseness of the coal and upon the depth from which it was above the hopper. If there was depth enough it would pack so that you would have to take a crowbar to pitch it through. If there was an opening underneath, of course the tendency would be to force down through this opening. If it was perpendicular it would drive it down. I don't think that if a screen was covered all the way along that it would make any difference; that it would have any effect upon the action of the screen, the dropping of the coal into the hopper. It is true the force of the coal is downward and the screen is inclined, but if there is an opening between the two parts—that is, between the hopper and the screen—and the two particles of matter lie together,
271 then they would be affected by striking, by pressing down upon the upper particles. As to what effect the dropping would have upon the coal in the upper hopper, that is a very nice question. It would depend upon the different points, the amount of inclines or angles, and the amount of velocity upon which you discharge it. Those are matters subject to a great deal of mathematical cal-ulation. It would depend largely upon the proportion to its angles and the quantity that it is loaded with.

Q. Now, we will presume that we take away the front board of the plaintiff's machine entirely, and instead of dumping the coal into an upper hopper and allowing it to run into a reservoir, allowing a portion of it to run into a reservoir, we would dump the coal directly into the lower part, which we will now call the hopper. Now, do you see any difference in result and effect?

A. Yes, sir.

Q. What is the difference?

A. The difference would be in proportion to the amount of surface that you expose this blow or this load to. I don't think that the force would knock the gate to pieces. It would depend upon the height which the coal fell and the quantity you discharge. It is true that height is a relative proposition, but you take a ton of coal and discharge it upon a surface of eight feet square, as against discharging a ton of coal two feet square, of course, it is just on the principle of gravitation of water—working water. You get that much more pressure from one in proportion to the square inches you expose. If it was dumped on the upper hopper the effect would be felt in the reservoir below. Yes; I think that if the hopper was full of coal or partially full, and the coal was ran-
272 ning down and laid to a certain depth on the inclined screen in the reservoir, and the coal was dumped on top of the coal in the hopper, the coal lying on the screen in the reservoir would be affected by that blow in proportion to the height and quantity and the weight of the blow. You must understand that the dumping of the coal through an aperture there, with the coal-bed lying in there, that the concession would be carried to the point of resistance if it was a quarter of a mile off, wouldn't it? I say it would; it would. The concussion would be communicated as far as the matter was

integrated together. The farther you went from the concussion the less the blow would be felt.

Q. The bottom of the sides of the hopper of the Sparks machine has inclined sides, has it not, converging to an apex or point*ly*?

A. Inclined bottom.

Q. Floor; a double-inclined bottom?

A. Yes, sir.

Q. Diverging to a point directly in line with the middle of the box?

A. Well, it looks like it. I didn't measure it. The weight of the coal would concentrate upon a perpendicular line through the center of that hopper. The gate is immediately upon the bottom of the opening. The gate is a little bit, however, to one side. It is very nearly in the line of pressure, however. In my opinion it would take very little to close the gate, because these two inclined bottoms, throwing the pressure to the center line, has a tendency to lock the particles of matter passing through—that is, bridge it. If the gate was shut, certainly nothing would pass. If the
273 gate was open, the amount to pass would depend upon the size and material and the size of the opening. The tendency would be, if it was very wide, if you had your inclined sides to correspond and the lumps or pieces were big enough to integrate with one another, then it would pass readily. I don't see why you couldn't close the gate. As to whether large lumps of coal would stop the way or not, that depends upon the size of the lump of coal and the opening under it. Whether that would happen occasionally would depend upon whether the pieces of coal were larger than the opening.

Q. I am talking about the ordinary run of coal, such as is practically taken from a mine and run through a machine of that kind.

A. As I say, of course this is a matter of argument. The principle that you are driving at is whether action and reaction in that position retards the discharge of the coal. All of this as to retarding the flow of the coal depends upon the proposition of the size of the opening and the size of the coal you are passing through. I don't see why the construction of a machine like this would not be a practical one—that is, if the opening is as large as it should be to receive particles according to their size. I think you could stop that gate and stop the balance of the coal. I have handled a similar thing many a time in rock, which is much harder. I was in the employ of the Black Diamond Coal Company about ten years. I was last connected with them, I think, in 1882; have not been employed by them that I know of since, unless you call my being asked to come here and testify employment.

274 Re-examination of P. B. Cornwall, recalled on behalf of defendant:

Mr. Estee: If the court please, I have shown counsel two receipts which I now hand to the witness and ask him to state what they are.

A. These are two receipts of the Excelsior Coal Company for the use of screen in screening coal, and one of them is dated August, 1885, and the other is dated in November, 1885. One of them is signed "Excelsior Coal Co., by M. R. Roberts, Jr.," and the other is receipted by M. R. Roberts, the principal party in this action. The rate per ton is four cents. I obtained these receipts from among the vouchers of the Black Diamond Coal Mining Company.

Cross-examination by Mr. BOONE:

One of them is in the handwriting of Mr. John Petty, the principal book-keeper. It is a printed blank of the Excelsior Coal Company, and the writing is in the handwriting of Mr. John Petty, the principal book-keeper of the Black Diamond Coal Company, and the "Received payment" and signature "Excelsior Coal Co., by M. R. Roberts, Jr.," is all in the handwriting of M. R. Roberts, Jr., I believe. The other one, the entire receipt, is, I think, in the handwriting of Mr. R. Roberts, Jr., except the signature, which is in the handwriting of Mr. M. R. Roberts, Sr. The one dated August 13th, 1885, is made out by Mr. Petty. It is on the blank of the Excelsior Coal Company and undoubtedly was brought there by them, and they have always taken the weights. When they have screened coal for us, they have taken the weights from the office.
275 It was not an unusual thing—not when Mr. Roberts, Junior, has come there to the office and brought the bill there and asked the book-keeper to fill it out. I don't remember anything about the bill myself.

I think I was operating one of their machines at that time; I am not sure; I can tell by referring to dates; I think we were. I don't think these bills were the result of a compromise between the Excelsior Coal Company and the Black Diamond Coal Company. I believe not, as a fact. Every man's memory is liable to be a little faulty, but if there had been a compromise—I am sure if there ever had been—it would be a matter discussed between Captain Roberts and myself, and I should have remembered it. There has been nothing of the kind that I know of. I have often talked to him about the excessive price I though he was charging. Captain Roberts may have given a price greater than four cents a ton that year. I will say that we have bills from him at all prices, ranging from ten cents to four cents, and I think the majority of them are seven and a half cents. I don't think that the prices paid by us were paid by reason of a compromise between the two companies. I am sure there has not been a compromise.

(The two bills were offered in evidence and marked Defendant's Exhibits ——, ——.)

WITNESS: It is true that long after the commencement of this suit and since we have been using Captain Roberts' screen for all the coal we have screened, and we have used it entirely for all the coal we have screened since this suit was commenced, and
276 we had a talk about the settlement of this suit, a compromise of it, and as a result of these conversations I offered this

matter of compromise, not acknowledging that we were in any way bound, but I offered as a matter of compromise to pay Captain Roberts the highest royalty, or rather the highest charge that we had made for the use of his machine at any time and a man to use it—that is, ten cents a ton. I offered him as a compromise of this suit to pay him at that rate on all the coal we had screened through our machine, the one that had the screen in, before we put a cover on it finally and securely and commenced using his machine in place of it. He discussed the proposition and seemed to entertain it favorably and asked that our book-keeper make from the books of the company a statement of the number of tons that had been run through our screen. Such a statement was made, and the instructions to the book-keeper were to make it with the utmost care and give him the uttermost fraction of a ton, and it was made and was absolutely correct, as near as a book-keeper can make a thing correct, and was submitted to Captain Roberts, and he took it away and considered it, and after some days—I think some weeks—he, in a conversation we had one day—I asked him what he had concluded about the matter, and he intimated that it was entirely too small; the amount of coal was entirely too small—that is, the inference from what was said was a suspicion that the amounts were not correct, and I then said to him that he was at liberty to send any expert book-keeper that *that* he would select; to send his own man or anybody he chose to take the books of the Black Diamond Coal Company and go through them item by item and satisfy themselves that it was correct; that I did not propose to make an untruthful statement from the books, and there the
277 matter dropped. That is the only discussion or compromise that has ever been had. My recollection about it now is that it amounted—I think there were about eight thousand tons, between seven and eight thousand or something like that; not so much, I think. Yes, yes; there was; there was seven or eight thousand tons. I don't remember the exact number. It would amount to ten cents a ton on seven or eight thousand tons, which would be seven or eight hundred dollars. There was nothing came of it.

(It was admitted that the signature on the receipts referred to was that of Mr. Roberts.)

WITNESS: The offer that I made was a matter of compromise only. I merely thought it would be economy to settle in that way. It was a matter of compromise inspired on our part, because I thought it would cost the lawyers' fees and court fees here and in Washington, a little more than what I proposed to settle for. I never admitted to anybody or at any time or place nor did ever think that plaintiff's patent was a valid one.

In answer to a question by Mr. Boone, I never conversed with you upon the subject of compromise in my life. Judge Boalt, my former attorney, may have conversed with you upon the subject, but until within the last few days I never knew that you were an attorney in this suit. I never knew who the attorneys were, either of them, unless it momentarily may have been mentioned and gone

out of my mind. Judge Boalt informed me that he had, in furtherance of this same matter, made a proposition to you or to some one on the subject. I have not the slightest recollection of ever speaking to you, either on the Market-street cars or anywhere else, in relation to this matter—that is, in relation to any compro-
278 mise. I saw Captain Roberts, and Judge Boalt reported to me that he had talked with the attorney or attorneys on the other side; that was the only proposition and the only thing that was done so far as I know. This proposition was made exactly upon the question of the amount of coal we had screened. It was based on the number of tons that we had run through that machine of ours that had the screen in it. Of course the amounts of the costs of the litigation, those were the two items that were considered, the amount it would cost to litigate it and the amount that would be required to pay if we paid the highest royalty for the amount we had screened.

(It was admitted that the patent of plaintiff expired June 17, 1890. It was admitted that it was a fact that the defendant screened or ran through the screens prior to the expiration of the patent 7,743 tons, and that there were run through the machine that had a chute in it, but no screen, 168,875 tons of coal.)

Defendant rests.

279 Examination-in-chief of L. W. SEELY, called by plaintiff in rebuttal:

I am a solicitor of patents and expert in patent cases. My place of business is 420 California street, in this city; have been in business in San Francisco nearly a year and a half; for fourteen years before that I lived in Washington, D. C. I was a solicitor of patents in Washington; occupied that position from 1876 to 1889. I commenced in 1876 to learn the business and have been in it ever since. In 1878 I entered the office of General Ellis Spear, on his resignation as Commissioner of Patents, and remained with him about five years as his principal *statement* in the transaction of his patent business, and after that I separated from him and entered upon private practice, in which I remained about six years, till the end of 1889, when I came here in partnership with General Spear. Our firm is Spear & Seely. Mr. Spear is well known in the East as having been Assistant Commissioner of Patents and afterwards Commissioner of Patents. Our business in Washington was that of soliciting patents. It was necessary, in the first place, to prepare applications for patents, in which the requisites are, first, to understand the instructions of the inventor—his explanations, which are frequently very obscure—and, secondly, to put them in intelligible shape in the form of specifications and descriptions, so that the patent officers can understand it, and after that to make comparisons covered by this application and patents already granted which may be decided by the Patent Office to be in anticipation of it, and also in the comparison of the claims in these patents, and
280 also in making searches as to the patentability of inventions,

and also as to the validity of patents with reference to the prior state of the art. There are other proceedings, such as interference proceedings, and various forms of appeal, all of which I have taken part in. I am familiar with the rules of practice in the Patent Office.

Mr. MILLER: We propose to show that General Spear, with whom Mr. Seely was at that time connected, was the person who took out this patent, and that Mr. Seely was his chief assistant and was familiar with it.

Exception No. 19.—To this an objection was made. The court overruled the objection, to which defendant's counsel excepted.

WITNESS: The Washington attorney was General Spear. I was not in General Spear's office at that time, in 1876. This relates to the reissued patent of 1876. No; I was not in his office in 1876. Like all patent solicitors, I have on a great many occasions been required to examine the machine itself on which a patent was to be secured or upon some part of which a patent was to be secured—to examine it in actual operation. I think I can say I am familiar with different kinds of machinery used at the present day. In fact, during my experience I have had occasion to examine machines and inventions covering—well, almost the entire range of inventions as classified in the Patent Office. I have done this for the purpose of understanding it thoroughly in order to prepare the application for patent. I have acted as an expert in patent litigation. Since I have been in San Francisco I have been employed in several cases.

281 I testified in the case of Tatum *et al. vs.* Eby, in which the invention was that class of saw-mill machinery known as gang-edgers. I also testified in the case of The Judson Manufacturing Company against The Barge Donahoo Company, involving improvements in wheel plows or cultivators. I also testified in the case of Willard *vs.* Tatum *et al.*, where the invention involved was what is known as the patents on Davy's safety motor steam-engines. I testified in the case of Huntington *vs.* The Risdon Iron Works, where a rotary ore-mill was involved. I believe that is all. Acting as a mechanical expert in patent cases is a portion of my business.

Counsel for the defendant denied that Mr. Seely was shown to be an expert and proceeded to examine him. To questions asked him the witness replied:

I never served as an apprentice in any trade. I am thirty-one years old. I was eighteen years old when I went in General Spear's office. I went in to assist him in the prosecution of patent cases. I had some experience before that. I was for two years in the office of Colonel George W. Dyer. I went in there first as copyist or clerk. I intended to learn the business first, of course—that is, the business of solicitor of patents. It was a law office, but his business was solicitor of patents. The first year I suppose I copied several thousand sheets of manuscript—there were no typewriters then—and

learned the routine work of the Patent Office. The first thing I learned in connection with patent soliciting was to make a preliminary examination. That was the way we were broken in that business. When I went into General Spear's I was writing specifications and prosecuting applications from beginning to end—writing specifications for applications for patents and practicing in the Patent Office. Practicing in the Patent Office is the endeavor, which
282 is very often unsuccessful, to secure a patent—that is, we go before the examiner of patents before whom the application is made and make arguments. We make a great many; yes. I made a great many. I suppose that in the first case I ever put I was obliged to make arguments before the Commissioner of Patents. I made arguments, say, from 1877 to the present time. I made hundreds of them. I really could not even approximate. I was General Spear's principal assistant. I was not a member of the firm at all at that time. I became a member of the firm in San Francisco in 1889. Mr. Spear is not in San Francisco; he is in Washington, and yet the firm is Spear & Seely. I never worked at a machine shop in my life, but I used to work in a carpenter shop. I don't know how long. My father had a school-furniture factory, and I used to occupy a good deal of my spare time in working around. I don't think I ever worked an hour in trying to learn a trade. I am an attorney-at-law in San Francisco. I am admitted to practice. I am admitted to practice in this court.

Q. Now, in — case- in which you say you testified—they were equity cases, were they not, Mr. Seely?

A. No; that case of Willard *vs.* Tatum was in the superior court.

Q. Was it a patent case?

A. The patents were an incidental issue; they were not the principal issue.

Q. In point of fact, the patents were not at issue in that case at all, were they—for I happen to be somewhat familiar with that case myself?

A. Yes; that case came up with regard to the operation of the machinery which was the subject of dispute between the parties.

283 Q. Please answer my question.

(Last question repeated.)

A. No, sir; the patents were not at issue.

Q. And there was no question as to the patents brought before either the court or the jury in that case, was there, Mr. Seely?

A. No; I didn't testify in that case to the operation of any particular machine. I will explain that. I prepared myself to testify, and was about to go on the stand in that case to testify, when the attorneys for the plaintiffs withdrew that portion of their case. I did testify in the case of The Judson Manufacturing Company *vs.* The Earge Donahoo Company, which was an action at law, tried in this court, before the master. Yes; that was an equity case. No; I have never testified in any action at law where a patent was at issue in my life, neither here nor in Washington, and I have never

testified except in the three cases mentioned here before the examiner in chancery. I have given many opinions concerning machines in the course of my practice as patent solicitor in connection with the validity of a patent which had been attacked. It has been a part of my business to give opinions as to the mechanical devices. I never did practice law at all or practice as an expert, although I am a lawyer and have been admitted to practice; never testified or gave any opinion as to any machine or mechanical device before any court or examiner until I came to San Francisco; have never given an opinion in court except in the three cases indicated.

Mr. ESTEE, for defendant: I submit, if the court please, that the witness is not a mechanical expert.

The COURT: I think he has shown himself to be an expert in a certain line.

284 Exception No. 20.—Mr. ESTEE: We except.

WITNESS: I have examined the various Roberts patents referred to in this case, to wit, the original letters patent of Roberts and the first reissue and the second reissue; am familiar with them.

By Mr. MILLER:

Q. Now, will you please take that original patent and these two reissues and compare them together with regard to the identity or non-identity of the inventions contained in those patents?

Mr. ESTEE, for defendant: We object to that, if your honor pleases, first, that the witness has not been shown to be a mechanical expert; second, that it is irrelevant and no part of the rebuttal, and, third, that whatever proof complainant had to introduce or was entitled to introduce to sustain the validity of his reissue patent should have been introduced in the making out of their original case, so we would have had an opportunity to meet it in our defense.

WITNESS: I have examined the Sparks patent and understand the construction of the devices described in that patent. This Exhibit J is the model of the Sparks patent.

Mr. ESTEE: I now raise this point, that the witness has not been shown to be an expert in this matter, and I suppose your honor holds the same as before, that he has been shown to be an expert?

The COURT: Yes.

Exception No. 21.—Mr. ESTEE: We take an exception.

Witness, referring to the Sparks machine, says:

This is a portable machine for delivering coal; it consists of a hopper having vertical sides and a narrow opening at the top and a gate directly at the bottom of the hopper, and a screen below that having an open or free front end, and a second screen below

of finer mesh than the first and extending in the opposite
285 direction back below the machine. It also contains a system of levers for operating a hinged gate.

Witness now, taking Exhibit 2, plaintiff's model, says:

The plaintiff's exhibit is also a portable coal handling and delivering apparatus. It consists of a large, flaring hopper, the sides of which are not vertical, a reservoir below provided with a screen bottom and which terminates in a chute, and a regulating and controlling gate at the end of the chute. Of course, it also includes the necessary framework for supporting it, and a lever for operating the regulating gate.

The essential difference between this and the Sparks patent or device consists in the use of the reservoir below the hopper and independent of it, and in the different location of the gate by which the coal is controlled at the point of discharge, and also in the different shape of the hopper, the shape of this being partly adapted to the unloading of vessels in the way in which the machine is used on the wharf. The Sparks hopper, having vertical sides and being not flaring—I mean as this is—would not, I should say, be adapted to receive coal from a swinging tub swinging on the yard-arm of a ship without scattering a great deal of coal, and that is rendered more evident from the fact that in the Sparks device they have supplied it with a platform here so that a man can walk around it and catch the bucket as it comes down and turn it into the hopper so that the coal would not scatter. The object of the reservoir in plaintiff's patent is to allow the coal as it escapes from the hopper to form a stratum of coal between the hopper and the gate, by which means, of course, the flow of coal from the gate can be better controlled and regulated.

286 In the Sparks device when the gate is open the coal rushes through and strikes the screen and is discharged without any means of regulating at the end of the screen, and, in addition to that, I should say, practically there is no means at all for controlling the flow of coal through the Sparks machine. Of course the gate at the bottom of the hopper here is intended for that purpose, but I do not believe that the gate can be operated. In other words, the coal drops vertically in here, and there is a tendency to bridge at the bottom, and the whole force of the coal is exerted downwardly in that direction, and I do not believe any power, even that of a steam-engine, would stop that coal, and if a steam-engine was used to do it you would break those levers before very much power had been applied. Then, again, you would not be able to close the gate, as I have stated. The same thing would happen in case a large lump of coal got jammed in there, for then you could not close the gate, and the fine coal and small pieces would escape around that lump and run down that chute, and instead of loading your cart you would probably bury it. There is no feature in the Sparks machine like the reservoir in plaintiff's device. The object of the reservoir in connection with the front gate is to allow the coal to distribute itself over the surface in a stratum, by which it can be

more easily controlled at the outlet, and also to form an actual reservoir to hold a certain amount of coal in case it is necessary to close up the gate and stop operations.

Q. Now, in the operation of the machine, what effect has that reservoir in the plaintiff's machine in the receiving of that coal in the upper hopper?

Mr. ESTEE: We object on the ground that the witness has
287 not been shown to have seen the machine in operation, and, further, that he is not a mechanical expert.

The COURT: Answer the question.

Exception No. 22.—Mr. ESTEE: Note an exception.

The WITNESS: It has the effect also that it tends to break the force with which the coal strikes there, because the coal drops vertically and strikes that at an angle, which, of course, tends to retard it, and the same effect is produced by the friction of the coal down the incline—that is to say, it descends the incline with a force a little less than gravity, and is still further retarded by what friction there is there. The gate is to control the flow of coal from the discharge opening, so that only a sufficient quantity at a time shall be loaded into the cart. What I have attempted to explain before is that the gate at the bottom of the hopper of the Sparks machine does not regulate the flow of coal. The object of the metal blank in plaintiff's device is to cover up the screen in case you want to run coal through without screening, so as to make a solid bottom—chute bottom. It then becomes a chute without a screen. I have examined the Plimsoll patent. I think I understand the operation of the machine. The principal feature of the Plimsoll patent is in the construction of a railway line, track sidings, switches, and devices for moving the coal cars. These are the points upon which the greatest stress is laid in the specification. The Plimsoll device is an expensive system for handling coal and delivering it. It consists of an elevated railway structure built upon pillars or columns of masonry and supporting a road-bed upon which is a system of railway sidings and tracks, being shown in the figure of the drawing, and the figure is broken off so as to show that there may be
more. The cars are run upon a track which moves trans-
288 versely to these tracks, and is arranged so you may take each car and transfer it to any one of the sidings. Then in between the rails of each track is a hole in the road-bed, and connected to this hole is an inclined chute having a screen bottom, and at the bottom of the chute is a weighing machine. The cars are formed with hinged bottoms in two sections, so that when the fastenings are pulled out the sides of the car bottom will fall apart, as in a good many dumping wagons, and simply let the coal out vertically *out* into the hole. It is a large piece of civil engineering, the whole device. Comparing it with this device, the plaintiff's machine, in the first place, it has no hopper. It is simply a chute extending from a hole in the road-bed and terminating below. There is a gate at the lower end of the chute, but I do not understand how that gate

is operated, for the patent does not explain it. I do not really remember. There is no mechanism shown for operating that gate, and I presume there is none described. When I say that the Plimsoll device has no hopper I mean that it has no hopper in the sense in which that term is used in the patented machine—in these exhibits. It is upon a road-bed, and upon the side of the rails, track rails, a system of platforms having inclined sides, but these could not and do not operate as a hopper. If there is any hopper in the Plimsoll device, it is the chute itself, which, indeed, the patentee, Plimsoll, describes as a chute or hopper. These inclined boards are wooden platforms forming a part of the permanent structure of the road-bed and placed so that — bottom of the incline is almost in line with the bottom of the car when it is dumping. For that reason it could not operate as a hopper, because the car bottom, hanging vertically, would control the direction of the coal falling vertically, and, as shown in the
289 drawing, it does not appear that the coal would strike these inclined bottoms at all, or only very slightly. It seems to me quite evident that the device could not operate as a hopper in the sense in which this is used, particularly in connection with a swinging bucket. A hopper, as I understand it, is an inclosed receptacle, having four sides, as shown in all these exhibits. Now, these platforms are placed between the separate lines of car tracks and, of course, are not enclosed, because otherwise the car could not run between them, so that if you were to swing a bucket in line with their longitudinal extent they would not receive the coal at all. The coal would scatter in all directions; some of it would fall into the chute through the hole, and some of it would scatter. The whole idea, purpose, and design of the Plimsoll device appears to me to be different from that of the patented machine, and not adapted to or capable of the use to which the patented machine is put and for which it is intended to be used. The Plimsoll is a stationary machine. It is a large structure, as I said before, built on masonry columns. I heard the testimony of Mr. Cornwall and of Mr. Barger relative to the Black Diamond coal mines in Contra Costa county. I saw the sketches, the chalk sketches, yes. I think I understand them. The device shown in the sketch on the blackboard is a structure intended for handling coal at the mine, as I understand it, and was located, or the tunnel, rather, was located, on the side of a hill, the side of a mountain, as one of the witnesses expressed it, and the railroad track by which the cars are taken to the point of discharge there runs on a level from this tunnel, or substantially on a level. It is on the hillside. At the bottom of the hill is a large bunker, which is not represented here, but which would suppose to occupy this position, and extending from the top of level
290 where the car track is, where the railroad is, is a chute which I understand has a screen bottom, or perhaps several screens. At the point where the cars discharge is a bumper, which is formed, I imagine, by turning up the ends of the rails, and the car is divided, with a tilting body—it is a very well-known form or construction of cars—so that when the wheels strike this bumper the car will tilt

forward and the gate will automatically open and the car will be discharged from the incline, from which it passes to the coal bunkers. It is also covered by a shed, a structure, house. The difference between this device and those shown in these exhibits is, first, of course, that one is a small portable arrangement to be placed on a wharf, but further than that this device lacks the elements of the hopper and the reservoir and the means for controlling the flow of the coal from the hopper to the discharge point. There is no hopper there. As described by the witness, there is a series of bulkheads, of which this is one, and in that bulkhead is set a sliding gate. Then below at different points on the chute are other gates, arranged in a series. Now, the purpose of the gates is not, as I understand it, to control the flow of coal into the bunkers, because, in the first place, the hopper, as the witness described it, had a capacity of about three tons, while the bunkers had a capacity of six hundred tons, and, of course, with these relative proportions, there could be no occasion for controlling the flow of coal so far as filling the bunkers was concerned, but the purpose of those gates was to enable these boys, the slate-pickers, we call them in Pennsylvania, to separate a portion of the coal when it was of a bad quality, to put down the gate, stop the flow of coal, and pick out
the slate or bone, and then, when too much coal had accumu-
291 lated at that particular point, to raise the gate and allow it to pass to the next boy, who would go through the same process. That was the sole purpose of these gates, as I understood it from the testimony. I have seen the device used in Pennsylvania for delivering coal. I don't think I could describe them accurately. In the plaintiff's patented device an exactly opposite condition of affairs exists. The hopper which receives the coal from the vessels is much larger than the cart into which the coal is to be discharged, and consequently there must be some means of regulating the flow at the point of discharge. Of course, with a bunker holding several hundred tons, and three tons emptied into a chute here, if there is no necessity for picking out the slate you could just let it run down there as fast or as hard as you pleased.

Q. Now I will ask you to take the original Roberts patent in this case and the two reissues and, for the benefit of the court and of the jury, compare the several documents together with regard to the identity or the non-identity of the inventions or devices therein described.

Mr. Estee: We object to the question on the ground that it is irrelevant and incompetent; that the patents themselves are the best evidence of what they contain; that oral explanations of whether they are for the same thing or not are not material or relevant; that the recitals in the patents and the claims of the patents are the best evidence of whether the reissues are enlargements of the original patents or not or whether it is for the same thing or not, and that the construction of the patents, the original patent and the reissue, are questions of law for the court to pass upon.

The Court: The question as to whether I shall construe it or

not we will determine later in the case. Objection overruled.
292 I will admit the testimony.

Exception No. 23.—Mr. ESTEE: Note an exception.

By Mr. MILLER:

Q. State whether or not, in your judgment, the invention claimed in the reissued patents here are the same as the invention shown, indicated, or described in the original patent, specifications, and drawings.

Exception No. 24.—Mr. ESTEE: I reserve an exception for the reasons just above stated.

The COURT: The same ruling.

WITNESS: I think, from a comparison of the patent and its two reissues, that there is no doubt that it is for the same invention—that they are all for the same invention. I have frequently had to examine the question of reissue; have frequently inquired into the substantial identity of patents.

Mr. ESTEE: We will note the same objection as before, with the addition that we don't think it is competent for the witness to answer that question, on the ground that he is not shown to be a sufficient expert to answer.

WITNESS: The original patent contained two claims: First, the receiving hopper B B' in combination with the hopper O, with its screen or grating, side D, chute F, with its toothed gate H, and one or more independent screens, I, all combined and arranged substantially as and for the purpose above indicated. Second, the metal blank or false bottom K in combination with the receiving hopper B B', hopper O, chute F, and gate *h*, substantially as and for the purpose above described.

293 In the first reissue, the first claim is the same as the first claim in the original. The second claim is the same as the second claim in the original, and there were added to it two more claims, the combination of the hopper B B' for receiving the coal from a swinging bucket, the reservoir O arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth, and, fourth, in combination with the elongated hopper, the screen D, reservoir O, and chute F with its gate *h*, the combination being substantially such as is herein set forth. The first of the added claims in the first reissue is to cover the combination of the hopper, this reservoir arranged to receive the coal from the hopper, and the chute and gate, all constructed to operate substantially as and for the purpose set forth; the combination of the hopper—that is, the upper hopper—for receiving the coal, the reservoir arranged to receive the coal as it passes from the hopper, the chute and the gate, lower gate; and the fourth covers a combination of hopper, the screen, the reservoir, the chute, and the gate. They are, of course, broader claims than were granted in the original patent, but the construction covered by them—the mechanical construction,

I mean, covered by them—are all fully described and shown in the original patent. As a matter of fact, all these constructions are, of course, shown in the drawings and the drawings in the two are identical. I find no difference in the drawings, and no substantial difference in the specifications. The phraseology is changed to some slight extent, but there is no substantial difference in the specifications. Now, in the second reissue, the same remarks apply as to the drawing and specification, but an additional claim
294 was added. There are five claims in the second reissue, of which the second, third, fourth, and fifth are the same as those granted in the first reissue. In addition, the patent contains a claim numbered one as follows: "A portable combined coal receiving, screening, and delivering apparatus, arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described." That is, I believe, the only difference between the first reissue and the second; the addition of that claim.

Cross-examination.

By Mr. ESTEE:

Q. Mr. Seely, did you ever see any one of those devices for screening coal made?

A. No, sir; these devices are all coal screens, and all contain screens. They didn't all contain hoppers. The Black Diamond does not contain a hopper. The Plimsoll does not contain a hopper. Those two are fixed machines, immovable. I never saw the Plimsoll machine work. I never saw the Black Diamond machine work. I never saw the Sparks machine work. I am not sure whether I ever saw the plaintiff's machine work or not—that is to say, I have seen these screening machines on the wharves here and looked at them. I really don't know, it was some time ago; I don't know whether they were plaintiff's or not; don't know whether the ones I saw had a gate at the lower end of the hopper or not. In plaintiff's patent there is no gate at the lower end of his hopper. When I stated that there was no gate in plaintiff's machine I meant not from the practical working of the machine, but from the
295 patent. I only judge from the patent. I never saw the Sparks machine work with or without a gate.

The object of the reservoir is to give an opportunity for the coal to spread a little, form a stratum, as it comes down, so that it is easier to control, and in addition, of course, in connection with the gate at the bottom, it affords means for storing, holding a certain amount of coal, whenever that may become necessary. The patent calls the reservoir a screen also, and if used for that purpose. It is capable of being used both as a screen and as a reservoir. By the second reissue letters patent this is called a reservoir, while in the original patent it is called "lower hopper," and it described the device used for the purpose of screening coal. The object of the

machine is to screen coal, except when that false bottom is put in. Incidentally it is to screen coal, in unloading a ship, and receiving the coal from the ship, screening it, and discharging it into carts.

Q. If the only object in the world was to unload the ship without any screening, Mr. Seely, then an ordinary chute, such as was testified to by Mr. Cornwall as having been used in former times by some ships in unloading coal, would dump it by putting a gate at the lower end; would dump it into carts just as effectively?

A. I dare say it would; yes, sir.

Q. Then the real object is to have a movable coal-screening apparatus, whereby you could dump coal into the hopper, and thus screen it and load it into carts after it is screened, isn't it?

A. I believe that is a correct statement. The object of the
296 Sparks machine, as I understand it, is substantially the same—that is, to receive the coal, deliver it into the screen, screen it, and then discharge it. They are both portable machines—that is, plaintiff's and the Sparks machine.

Q. You stated in your testimony that what is called the hopper in the Sparks machine, you call it a sort of a box. I will ask you to state to the jury if it would require invention, in your opinion, for a skilled mechanic to change the receptacle for the coal that is used on the Sparks machine into the same kind of a hopper that you see in the plaintiff's machine.

A. Well, it is a rather difficult question to answer, but, in considering whether an invention has been made, the change which formed the invention must always be considered in connection with the result produced by the change, and if it is a fact that the Sparks machine would not operate with a swinging tackle and bucket, and that in order to make it operative it was necessary to construct a different kind of a hopper, and thereby accomplish a new and improved result, then I think that change would amount to invention.

Q. Then I understand you to say that if you were unloading a vessel by a swinging bucket from a ship and you found that by dumping it into the so-called hopper in the Sparks machine that some coal struck on the outside of the hopper, that it would be invention to enlarge that hopper and make it wide enough so that it would catch all the coal?

A. No, I wouldn't put it as broadly as that; not simply enlarge it.

Q. Then I ask you to explain what you mean by a change. What change could be made that did not enlarge the hopper to perform that purpose?

297 A. Well, the shape of it is changed. This hopper is constructed with flaring sides, which, of course, are much better adapted to receive coal and deliver it than the straight sides are. These flare from below—that is, the flare commences half way up—but at the top where the coal first strikes they are vertical (referring to the Sparks machine). I think it would have been invention to have broadened the hopper of the Sparks machine, giving it the flare of the plaintiff's machine. I say this in connection with the

result produced by it. The result referred to in unloading ships is to give a big surface for the coal to drop or collect on. Of course the plaintiff did not invent the swinging bucket or discover the unloading from a ship or the fact that the bucket was attached to a yard-arm or any other device relative to the unloading of coal from a ship, nor did he invent the means of swinging the bucket, but it does form a part of his invention in one sense. He did invent a device which was intended to be used in connection with that bucket and with that alone. Of course the bucket and these devices form no part of his invention. It is true that all we would have to do to catch the coal is to make a receptacle broad enough on the top to catch it. I do not think making a receptacle broad enough to catch the coal as it was dumped from the bucket would be invention.

Q. But I understand you to say that a flaring shape, known as a hopper, would be invention because it flared. Is that so?

A. Yes; that would be one element which would make it an invention.

Q. Is there anything new in that hopper of plaintiff's?

A. No; there is nothing new in the hopper.

298 Q. Then it was known to mechanics—that hopper, just as you see on plaintiff's machine, was known to mechanics before that invention, wasn't it?

A. I should say so; yes, sir.

Q. Then will you tell the court, if it was known to mechanics at the time and before plaintiff's machine, why mechanics, without invention, could not have placed it on either one of these machines—that is, either the Sparks machine or the plaintiff's?

A. Well, so far as the hopper itself is concerned, I suppose that might have been put there without requiring any great amount of invention.

Q. Well, but if it was known to mechanics prior to either of those machines, then would it require any invention to apply it to either one of them?

A. No; I think not. There is nothing *in* new in the screen, and there is nothing new to mechanics in the screen used for screening coal.

Q. Will you state to the jury, if there was nothing new in a screen and in a screen for screening coal and in the shape of that screen, if it required invention and the exercise of inventive faculties to make the shape of the machine, the peculiar form of the screen as found in plaintiff's exhibit or the peculiar form of the screen as found in the Sparks machine?

A. Certainly not.

Q. Then will you explain to the court and jury what invention, if any, there was in making this plaintiff's screen in the form of a so-called reservoir?

A. The prior device, the Sparks device, had no reservoir.

Q. That is not my question. I don't wish to interrupt you, but that is not my question.

299 A. I am unable to answer your question as you put it, but I will say that the prior device of Sparks had no reservoir. As a result of that, in my opinion, it would not operate, simply because it had no reservoir. It would not operate as a coal-delivering apparatus. It had no reservoir and no lower gate. Now, the patentee discovered why that machine would not operate. He supplied the defect by putting in the reservoir and the lower gate, and thus made an operative machine of an inoperative construction. That was his invention or the principal part of it, in my opinion. That was his invention.

Q. Was there anything new in a gate such as you see on plaintiff's machine or such as you see in the Sparks machine?

A. No.

Q. There was nothing new in placing those gates where they were most needed in any machine, was there?

A. No.

Q. There would be nothing new in placing a gate at the bottom of the hopper, would there?

A. No.

Q. Or even in the middle of the screen, would there? There would not be anything new in either of them to put it in the middle of either of these screens, would there?

A. Possibly not.

Q. Now, if that is so, and there would be nothing new in it, then what is there in the reservoir except the fact that there is a gate at the lower end of his screen, and that the screen is made with sides high enough to hold, as he states, two or three tons of coal?

300 A. Why, the invention in this case is—you must take the whole machine and not by separate parts. It is possible that all the separate parts of the machine might be old, and yet the machine itself, as a whole, in combination, be new.

Q. It is an admitted fact in patent law that old devices, when they are put together to perform a new function, will form an invention at times, isn't it?

A. Yes, sir; certainly.

Q. Now, will you state to the jury, admitting that to be true, what new function plaintiff's machine performs over the Sparks or over the Plimsoll or over the Black Diamond machine?

A. It performs the new function of enabling the coal to be taken from a ship and to be loaded onto carts through a portable machine of this character. The Sparks device is an inoperative device, as I consider it.

Q. Why? Is it on account of the hopper?

A. Oh, no; not so much so. That is one minor point, but principally because there is no means of controlling the flow of coal. There are in that means for controlling the flow of coal.

Q. In what?

A. In that exhibit; the gate and the reservoir. Of course, the reservoir is formed by the gate.

Q. We will suppose there was a gate placed at the bottom of the hopper of plaintiff's machine, and we will suppose that he had

exactly the screen or device of plaintiff or of the Black Diamond, and when he wanted to load a cart with coal he raised the gate to the hopper and let it flow in sufficient quantities to go down and fill the cart. I ask you if that, in your opinion, would not be a practical machine.

301 A. Well, that is the Sparks machine. No; I say I don't think it would be a practical machine, because you could not control the flow of the coal.

Q. But we will suppose you had a gate right here at the bottom of plaintiff's hopper, where there is a gate in plaintiff's practical working machine, and that you raised that gate and just let down a cart-load, and that it passed over this screen down into the cart. I want to ask you if it would not be a practical machine.

A. No; I think not.

Q. Why?

A. You have a gate in the Sparks patent——

Q. Oh, I am not asking you about the Sparks patent.

A. Very well. This is a hypothetical machine? No; I don't think it would be a practical machine. I think it would be a practical machine if you were using graded coal—coal small enough to pass through there, through the bottom of the hopper, without any difficulty. In the coal used here there is a tendency for the coal to bridge here at the bottom across the opening, and under those conditions the gate could not be operated. If you got your coal jammed in the aperoture and could not close your gate down, of course it would not operate.

Q. But wouldn't it jam into the aperoture at the bottom of that chute just as much as it would if you had exactly the same sized aperoture at the top or under the bottom of the hopper?

A. No; because the coal has had a chance to distribute itself over the surface of the reservoir and comes down there in a thin-er stream and not in masses.

Q. Would the pressure be different upon the gate at the lower end of the reservoir than upon the gate at the lower end of

302 the hopper, provided the sides of the hopper and the sides of the reservoir stood at the same angle?

A. I will use your term "pressure" and answer the question first by saying that you are perfectly right about that. It would be the same if it was a question of pressure, but it is not. That coal is dumped from a swinging bucket, falls vertically, and comes down with a tremendous concussion. Now, the effect of that—the coal rushing together there if you let down the sides of that hopper—is to create a tendency to bridge there and jam; but now when you get down to this lower end the coal has had a chance to distribute itself into a thin stream and has its velocity, or rather its momentum, very much reduced by the time it gets there, first by striking the hopper, and second by the friction of the screen surface, so that your term pressure might properly be applied to the movement of the coal against the lower gate, but it could not be applied to a mass of a ton of coal falling from a bucket into the upper hopper. That

is the best explanation I can make. The chief object of this invention is to get the coal out of the hold of a ship into a cart.

Q. Would not this machine screen coal a great deal better provided there was no coal on that screen and it ran right out into a cart from the hopper in regular quantities, regulated by a gate at the bottom of the hopper, instead of the aperture there at the bottom of the chute?

A. You mean to take off the gate at the bottom and put one in the bottom of the hopper?

Q. Yes; just let it flow—just regulate it by pulling it up, just so it would flow in regular quantities across that screen from the hopper.

303 A. I really can't see how it would screen it any better. I suppose it would screen it just as well if it were practicable to operate with that construction.

Q. Don't you know it would not screen the coal well if you had two or three tons of coal in that so-called reservoir piled up? Don't you know it would not screen that?

A. Of course, it would screen only the bottom part.

Q. Then it could not act as a screen if there were two or three tons of coal, as Mr. Roberts has testified, in that reservoir? It could not screen practically, could it, Mr. Seely, except the coal that was immediately on the screen at the bottom?

A. Oh, certainly; if you have got room enough for your coal to distribute itself sufficiently over the bottom it will screen. Of course, you could probably crowd your hopper and reservoir up, fill it up to a point where the machine would not operate at all, and the screening would be very little.

Q. Then in point of fact, to screen coal well, the supply of coal passing over that screen must be regulated by something, mus'n't it?

A. I think so; yes, sir.

Q. Now, will you tell the jury if this machine was used without any gate at the bottom of that hopper how it could be regulated?

A. Well, it is regulated by the gate at the bottom (of the reservoir).

Q. How can it be regulated by the gate at the bottom?

A. You can let a greater or less amount escape at a time.

Q. If the gate was raised thus, so that when it came down the coal would flow out, there would be a steady flow, providing you let it down?

304 A. Yes, sir.

Q. But if you put a whole tubful right in the top of the hopper and it immediately flowed down on this screen, would it be, in your opinion, properly screened?

A. Well, I can't answer that point. I am not an expert on coal screening.

Q. As an intelligent man, don't you think this machine of plaintiff's would screen coal better to have the supply of coal regulated so that there would be a regular flow of coal across the screen, so that every part of the small particles of coal would strike the screen, and thus pass through the little aperture in the screen?

A. Undoubtedly it would screen better.

Q. There is a hopper here in plaintiff's machine, isn't there?

A. Yes, sir.

Q. There is a hopper in the Sparks machine, isn't there?

A. Yes, sir.

Q. There is a gate in the Sparks machine, isn't there?

A. There is a gate in the Sparks machine.

Q. And a gate in the plaintiff's machine?

A. Yes, and a gate in the plaintiff's machine.

Q. And there is a screen in the Sparks machine, isn't there?

A. There is.

Q. And there is a screen in the plaintiff's machine?

A. Yes, sir.

Q. Now, will you tell the court what other device except the frame there is in either of them?

A. Well, you have catalogued all the elements of both machines. The invention does not consist simply in those elements.
305 The invention is in the way they are combined, used, and operated.

Q. Are they combined to do a different thing, so that one machine does a different thing from what the other does?

A. Yes, sir. The Plimsoll is a patent for a system of devices for handling coal. It is a coal depot, as it is called, I believe, in that article you have before—a coal depot where they screen and weigh coal. A coal depot existed long before this patent, but that is one part of the invention.

Q. The depot is no part of the invention and the cars are no part of the invention, are they?

A. No; the track is, though.

Q. Nor those solid masonry columns that you speak of are no part of the invention, are they?

A. No.

Q. The invention consists in the device by which coal can be screened and weighed, does it not?

A. Yes; that is a part of it. In the Plimsoll patent there is a hopper described below the road-bed, which he alludes to. This is the hopper (indicating). A hopper is a receptacle for feeding any kind of material to machinery usually. That is the definition of the term hopper, which originated in flour mills and in fanning mills which have been used by farmers. A hopper is a device of old and common construction. It is a receptacle that receives something and has an aperture in it, and that aperture regulates the flow of material, whatever it is, that passes out. When the car bottom was opened in the Plimsoll device, the coal dropped out into the receptacle under the track. The patent calls it a
306 hopper or chute—an inclined hopper. There is a gate to that hopper right at the bottom of the hopper, and the gate regulates the flow of the coal from the hopper into the sacks. That is the way it is sketched in the patent.

Q. Now, will you state to the court and jury if the Plimsoll

machine does not do substantially the same thing in substantially the same way that the plaintiff's device here does?

A. So far as the mere fact of discharging coal at the lower end of the chute is concerned, it is substantially the same.

Q. Now, we will take the Black Diamond machine. It is admitted that the Black Diamond machine is a permanent institution. It is not a portable machine like the plaintiff's or like the Sparks machine. Now, there is a box or receptacle for the coal, isn't there, where it comes out of the car?

A. Yes; I will call it a receptacle. Yes; the Black Diamond machine has a receptacle into which the coal is dumped. Yes; there is a bulk-head with a gate in it.

Q. And when the gate was opened the coal went down on a screen, didn't it?

A. Yes, sir.

Q. What was the object of its going down on a screen?

A. To carry it down the hill to where the coal bunker was.

Q. Wasn't it to screen it?

A. I beg pardon. Of course, to screen it. There might be patentability in changing the location of the gate.

Q. There might be?

A. Yes, sir; and there would be, provided a different result was accomplished. The object of the gates in the screen of the Black Diamond machine was to let the boys have a chance to take out the slate and bone coal, and also for the purpose of screening the coal. It had a screen bottom.

Q. Well, the plaintiff's machine was for the purpose of screening coal also, wasn't it?

A. Yes, sir.

Q. What is the difference whether this reservoir in plaintiff's machine is used—the gate at the bottom of it is used for holding it as a reservoir or holding it up here for the boys to pick out the bone coal—what is the difference as to the patentability of the machine?

307

A. By means of this reservoir (in plaintiff's machine) and the gate at the bottom we are enabled to control the flow of coal in small quantities, as required for the carts. In that device, which is to unload coal from a three-ton hopper into a six-hundred-ton bunker, that necessity does not exist, and in my opinion that construction, with its gates adapted to that particular purpose, would not be suggestive of the purpose for which plaintiff's is intended.

Q. Does it make any difference as to the practicability of the Black Diamond machine or of plaintiff's machine whether the coal is dumped into a cart or into the ocean, so far as its practicability is concerned and its use?

A. Why, yes.

Q. Well, tell us why.

A. The construction up there (at the Black Diamond mine) would not be a practical construction for unloading vessels—for loading carts.

Q. Would it make any difference as to the practical working of

this machine if at the bottom of the Black Diamond screen, right at the bottom, at the lower end of the bottom gate, you had a cart instead of having a bunker?

A. No; not in the practical operation of the Black Diamond machine. I don't imagine there would be a cart there very long.

Q. Then does it make any difference practically whether there was a bunker at the lower end of the Black Diamond screen or a cart, so far as its anticipation of plaintiff's machine is concerned?

A. Yes; it makes a difference. It makes a difference.

Q. Tell us why.

308 A. The purposes and objects and results obtained by the machines are so different.

Q. What is the result that is different?

A. This device must be considered as a whole. You must take its separate elements and combine them as a whole with reference to the question as to what it is intended to do and how it does it.

Q. Mustn't you take ours as a whole, too?

A. Yes; take yours as a whole, too.

Q. Then do you pretend to say to this jury that because there is a bunker there it makes a difference between the two machines?

A. Oh, no; that is not the only difference.

Q. But does that make any difference whether it is a bunker or a cart or even a sack, as they used in the Plimsoll patent?

A. No; probably not.

Q. Now, Mr. Seely, do you state to the court and jury that it would require invention, if plaintiff's machine had been set up on a mine as a permanent machine and ten times the size of which it is now, to have changed that to the minimum, the small machine that it now is, and make it portable?

A. The mere fact that it is portable I don't think makes it patentable. As to the question of size, I would say yes, it does. It did in this instance require invention.

Q. I don't say in this instance. In your opinion as an expert, would it require invention to take the plaintiff's machine, if it was ten times the size it is, and cut it down to the present size?

A. No; stated as broadly as that, it would not require invention. That would amount simply to a reduction in size. Of course where there is a reduction in size, and by reason of that it accom-

309 plishes new and useful results, then it would be invention. There is a new and useful result accomplished by plaintiff's machine. I have visited the anthracite regions of Pennsylvania, in the Lackawanna valley. The coal there is mostly hoisted out of a shaft. Of course the anthracite coal is not assorted after it passes through the crusher. It is screened. The slate is picked out in the breaker, and the coal is frequently washed.

Redirect examination.

(By Mr. Miller:)

Q. We will assume that these are combination claims in plaintiff's patent. Now, what effect would the question of invention or non-

invention, as to any one of the specific elements, have upon the patentability of the whole claim?

A. It would have no effect at all.

Q. I will ask you whether or not, in your judgment, as an expert, it would require any invention to produce the Roberts machine as an entire device, knowing those other devices which are here in evidence, when the additional fact is shown that by means of the Roberts device a successful machine was devised for unloading vessels of coal, whereby the coal is received from a swinging tub or bucket, carried through the machine, screened if you desire it, or, if not desired, delivered automatically in such quantities as may be desired to a cart.

Mr. ESTEE: We object to the question on the ground that it don't take into effect the fact that there are antecedent machines that do the same thing, and he assumes a state of facts that does not exist in this case, and that it is irrelevant and incompetent.

The COURT: Ask the question.

Exception No. 25.—Mr. ESTEE: Note an exception.

A. Yes, sir: I think there would be invention, and I
310 think I testified to that on the direct examination.

Examination-in-chief of JOHN B. MORRISON, a witness called on behalf of plaintiff in rebuttal:

The WITNESS: I have charge of the coal screens over in Oakland belonging to Captain Roberts. I have been in charge of them about seven years. I hire the men to put on them, and see that they do their work, and work them myself at times. I have worked these machines. I recognize the model "Exhibit 12."

By Mr. BOONE:

Q. Did you ever see any machines operated for delivering coal from a hopper into carts, besides the one represented by "Exhibit 2," the Captain Roberts machine?

A. Yes, I have seen this kind here: these two kinds (indicating).

Q. Do you know the screens and machinery used by the Oregon Improvement Company for that purpose?

A. Yes, sir.

Q. Have you seen them in operation?

A. Yes, sir.

Q. Do you know whether or not a machine intended for the purpose that Plaintiff's "Exhibit B" is could be successfully operated or not without a reservoir located between the hopper which received the coal from the swinging tub and a gate which discharged it into the carts?

A. Decidedly no. It would not work, because the flow of the coal from the upper hopper could not be controlled. I know this by experience. I have seen it run out and empty the whole hopper right on the wharf. I seen it done at the Renton bunkers. I seen it done on Oakland wharf.

Cross-examination:

311 The WITNESS: Plaintiff's machine has a reservoir in it, with a gate at the lower end of the reservoir. I see no reservoir in defendant's machine. Defendant's machine has a gate. Plaintiff's machine is the only one I know anything about. It was the Oregon Improvement Company's machine that covered up the horse and cart, not the defendant's.

Mr. ESTEE: Then that is not our machine?

Mr. BOONE: We don't charge your machine.

Mr. ESTEE: I move to strike out the testimony in relation thereto, then.

The COURT: The motion is denied.

Exception No. 26.—Mr. ESTEE: Note an exception.

The WITNESS: There is a gate in plaintiff's machine right at the bottom of the hopper, right at the throat of the hopper. By having a gate there at the bottom of plaintiff's hopper has changed the machine in great measure, and has saved it from getting broken up. When I worked those screens the throat of the hopper was much smaller, and the coal at that time that was shipped into San Francisco was of a great deal smaller quality than what it is now at the present time, and done the work satisfactorily. There being a change in the character of the coal, the consequence was that Captain Roberts had to make the opening at the bottom of his hopper wider; that let the coal drop directly on top of the bars, smashing the screen all to pieces. The gate at the bottom of the hopper does regulate the flow of the coal onto the screen, but it was not put there for that purpose. Sometimes the gate would get up a little ways and we couldn't close it.

Q. If there had been an upper gate, or a gate right at the bottom of the hopper, and that had been closed, the coal would not have run down and covered up the mule, man, and cart in the instance to which you have testified, would it?

A. No.

312 Q. Then you could regulate the flow of coal, couldn't you, if you had a gate at the bottom of the hopper?

A. Yes; you can regulate the flow of coal by having a gate at the bottom of the hopper.

Examination-in-chief of JOHN LINEHAN, a witness called for plaintiff in rebuttal:

The WITNESS: I am foreman of Captain Roberts's coal screens; have been foreman about twenty years; have been engaged in the coal screens for about seventeen years in this city; have worked them; have hired men and have worked them myself.

(By Mr. BOONE:)

Q. Mr. Linehan, please take that model, "Exhibit 12" (the Sparks machine), which you find right next to you, and examine that model and state whether, in your opinion, a machine constructed

like that could be operated successfully for receiving coal from a swinging bucket and discharging it into carts on a wharf.

Mr. ESTEE: We object on the ground that *is it* not shown that the gentleman is an expert.

Mr. BOONE: He has been handling these machines for twelve years.

Mr. ESTEE: He has not seen it operate, probably, and he is not — mechanic.

The COURT: Answer the question.

Exception No. 27.—Mr. ESTEE: Note an exception, unless the witness states that he has seen it tried and failed.

The COURT: Take your exception. Ask the question.

A. I don't understand the opening that you have got up here, but from the way it looks to me I don't think it could work,
313 because all the coal comes in here in a body and would go right down here and wouldn't screen at all. I don't think it would screen. It wouldn't screen. Then, shutting this thing up—how do you shut it up? I don't understand it. I don't understand it all. It is entirely new to me.

Q. What would be necessary to make that machine work practically, so far as you are able to judge from your experience?

Mr. ESTEE: I object on the ground that he has not shown that he is competent to testify as an expert.

The COURT: Let him answer.

Exception No. 28.—Mr. ESTEE: Note exception.

A. Of course I never worked that machine. I haven't got experience in that, but from the looks the coal comes all in a body, and the way you have opened that on top I can't understand it; but in case of opening it I don't see how the coal is screened; it would all come down right in a body together.

Q. Suppose there was a lower gate—a gate arranged at the lower end of the chute.

A. Well, then, it would help, of course, to screen it; but without that—you see we have got the gate—we have screens here. Sometimes this lower gate we have got in these other machines gets out of order, but, opening this gate on top, the coal would run, and I often see four or five or six tons or twelve tons go right on the dock; couldn't stop it. Finally, when it gets the best of the man that is tending the screen, he shuts this up and checks it and holds it. If not, if you haven't got the lower gate—if you can't shut this—
the whole hopperful runs out and crowds up the whole wharf.
314 I have seen a hopperful, time and time again, go out that way; you couldn't stop it. Of course this lower gate stops it. Then, if the coal comes down too fast, you can screen it with your shovel here.

Cross-examination:

The WITNESS: Take the Sparks machine, and if you would raise up the screen so that it was nearly at a level of course the coal

would stop running. As you bring the screen up towards a level the coal wouldn't run so quickly.

Q. The fact is, this screen in the Sparks machine being adjustable as to its steepness, when it is brought near a level it acts as a gate, does it not, because it stops the flow of coal when it is brought near a level, does it not?

A. Of course, if you don't give it pitch enough to run it will stop itself.

Q. This Sparks machine is made that way, isn't it? You can adjust it at any pitch you please. The screen in the Sparks machine was so fixed that it could be raised and lowered and brought near a level, and when in that position the coal would not flow, would it?

A. I don't understand this Sparks machine at all. I never worked it. I am no mechanic; but from the looks of the thing—I don't understand it—I should say it would not screen. Of course, when you open the top, naturally enough it will all run on the dock, without this bottom gate.

Q. But if this screen in the Sparks machine is brought up near a level that stops it from flowing, doesn't it?

A. I should judge no. I am not an expert.

Re-examination.

(By Mr. BOONE:)

Q. Even if it was brought up more level, if the screen in the Sparks machine was brought up on a level, if the coal flowed out at all, it would flow on the dock, wouldn't it?

A. Certainly.

315 By Mr. ESTEE:

Q. You say it would flow on the dock; but if a cart was there it would flow in the cart, wouldn't it?

A. You have to give it pitch enough so that the coal will run.

Q. The coal running through the plaintiff's machine would fall on the dock if the gate was up, wouldn't it?

A. We have a gate to stop it there.

Q. Yes; but if it was up?

A. If we had no gate at all, naturally enough it would all run out.

Q. But you have a gate at both ends of plaintiff's machine, haven't you?

A. Yes, sir. We have worked it for about seven years without any gate on top.

Q. That was originally, wasn't it?

A. Yes, sir.

Q. How does it work now with a gate on top?

A. Well, it works just the same.

Q. Why did you put the gate there, then?

A. Because we had to make a bigger opening for the coal. I had to get up there to punch this coal down. It would get clogged up here.

Q. Couldn't you make an opening without putting a gate in it?
A. I could make an opening, but it was breaking the bars down all the time.
Q. It simply served as a brake, did it?
A. Yes, sir.

Further cross-examination of L. W. SEELY on behalf of plaintiff in rebuttal.

(By Mr. ESTEE:)

Q. Mr. Seely, in your examination on Friday you testified as to the first and second reissue letters patent, original letters
316 patent of which was issued to M. R. Roberts on the 17th of June, 1873, and you stated in your testimony, among other things, that there were very slight changes in the specifications between the original patent and the first reissue. I will ask you to state if prior to that time or since you examined those specifications.
A. Yes, sir.
Q. And compared the specifications of the two reissues with the original, did you?
A. Yes, sir.
Q. After such an examination you testify and still believe that there was no material change in the specifications as between the first reissue and the original, and the second reissue and the original.
A. I believe there is no material change.
Q. You testified also as to the claims, and stated that the claims were substantially the same, although somewhat expanded, did you not—that is, as between the original and the two reissues?
A. Well, I testified that the claims had been expanded. No; I did not mean to say that the claims were the same. They are not the same.
Q. Now, in the claims for the original patent issued on the 17th of June, 1873, and in the specifications and drawings, do you find the description of plaintiff's device as represented in his model here that has been introduced in evidence?
A. You mean in the original patent?
Q. Yes, sir.
A. Yes, sir.
Q. Do you find such a description as would permit a mechanic skilled in the art to which this appertains to have made his device, his machine, a practical working machine?
A. I think so.
Q. State to the court and jury, then, if in the original specification and in the claims found in the original specifications of the
317 original patent issued to M. H. Roberts on the 17th of June, 1873, if you find a description of Plaintiff's "Exhibit No. 2."
A. Yes, sir.
Q. And you find such a description that either a mechanic skilled in the art to which it pertains or any other skilled artisan could

have made that machine from the drawings and from the description found in that original patent in the specifications and claims?

A. I think so.

Q. You found a perfect description, did you, of the hopper, the screen, and chute, the false bottom here, and the grate and chute at the bottom and the frame?

A. All there is in the original; yes, sir.

Q. Did you find anything in the machine as represented in the plans found in both the original and reissue letters patent, and also in the model, Plaintiff's "Exhibit 2," that you did not find and do not find correctly described in the plaintiff's original letters patent? I mean in the specifications of plaintiff's letters patent, and in the claims thereof.

A. No; I do not find anything of the kind. I find the reservoir in plaintiff's original patent, although it is not called by that term there. It is called the lower hopper. I don't know why the name "lower hopper" was changed to "reservoir" from the original to the reissue letters patent. I don't know any reason for the change. I know nothing about the circumstances which required that reissue. I believe that it is true that everywhere where the words "lower hopper" appear in the original patent in the reissue patents of 1875 and of 1876 the word "reservoir" is substituted.

Mr. ESTEE: I hand the witness the original patent issued to M. R. Roberts, and I propose to read from the specifications of the first reissue letters patent and I will ask the witness if the part I

318 read he finds in the specifications of the original: "The hopper B B' is as long as the machine and is made wide, so that when ordinary care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall, and is thereby prevented from being broken and pulverized." Do you find that in the original patent?

A. No, sir.

Q. (Reading further from the first reissue letters patent, the one of January 5, 1875:) "The outlet on hopper B B' extends entirely across the upper end of the side of screen D, by which arrangement the passing coal is distributed over the entire width of D and has to pass its entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper B B' makes it a success in receiving the contents of a tub swung from a yard-arm, a result which I believe was never before accomplished by any hopper." Now, I ask you if you find that in the specifications of the original letters patent.

A. No; it is not expressed in the same way here. No, sir; it is not there at all.

Q. Now, I will read further from the specifications of the first reissue letters patent granted to M. R. Roberts, and I will ask you if this is found in the original letters patent: "By placing the reservoir O in its peculiar position and making it large several advantages are obtained. The gate *h* is sufficiently high from the wharf

to allow vehicles to be driven under it and receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf, and the reservoir O is large enough to serve as a storeroom, so that in case of temporary delay in the vehicles carrying the loads to the yards the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf." I will ask you if you can find that in the specifications of the original patent.

A. No, sir.

Q. Reading also from the same patent, I will ask you if you find this that I am about to read: "From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobble-stones, gravel, &c., and assort them while unloading the ship."

A. I do not find this in the original letters patent.

Q. Now, I will read from the claim of the first reissue letters patent and ask you to look at the claim in the original letters patent, and ask you if you find this in the first claim. I will ask you if you find the words "reservoir O" in the original letters patent.

A. No, sir; it is called "the hopper O."

Q. In the second claim I will ask you if you find the words "reservoir O."

A. It is called the "hopper O" there also.

Q. Now, I will read the third claim: "The combination of the hopper B B' for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth." Do you find that in the original patent?

A. There is no such claim in the original patent.

Q. I will still read to you from the same patent—from the claim in the first reissue letters patent: "In combination with the elongated hopper, the screen D, reservoir O, chute F, with its gate *h*, the combination being substantially as is herein set forth." Do you find that in the original patent?

A. No, sir; there is no such claim in the original. I do not consider that these are material changes in the specifications. There are material changes in the claim.

Q. I will now hand you the first reissue letters patent, Mr. Seely, No. 6211, dated January 5th, 1875, application filed August 4th, 1873, and ask you if there is any change whatever in either of the claims or specifications between the second reissue letters patent and the first reissue letters patent except the addition of the first claim to the second reissue letters patent. Is there any change whatever in the wording?

A. I think there is no change.

Q. I will now read to you from the first claim in the second reissue letters patent: "1. A portable coal receiving, screening, and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water craft, and to screen it auto-

matically and deliver it into carts, said apparatus being constructed and arranged substantially as described." Now, I will ask you if that is not the only change you find there in the specifications or in the claims of the two patents—that is, the first reissue and the second reissue.

A. I have not compared the specifications word for word. That is certainly the principal change, and I believe the only change; the only material change.

(It was admitted as a fact by counsel for the respective parties that this is the only change.)

Re-examination:

The WITNESS: I find the description of this machine as
321 represented in the model and drawings in the original patent. I find no difference in the function of the so-called lower hopper "O" in the original patent and the reservoir "O" in the reissue letters patent.

Examination-in-chief of Captain M. R. ROBERTS, recalled in rebuttal:

The WITNESS: I first learned about the Sparks patent in 1876 or 1877. I did not know Sparks personally. He is dead. He died about four years ago.

(It was conceded that all this testimony goes in subject to defendant's objections.)

The WITNESS: I am acquainted with the Sparks machine. I understand how it operates—that is, how the specifications say it will operate. I think it is not a practical working machine—that is, that it could not be used the way the patent described it, except you put a man up here on top who dumps the coal in one tub at a time, emptying the hopper at the same time.

(By Mr. BOONE:)

Q. State whether or not the Sparks machine would be a practical machine for operating on coal such as is placed through the plaintiff's machine.

Mr. MCCUTCHEN: We object on the ground that that is calling for the conclusion of the witness. He can state the various elements of the machine and what it does, and the court and jury will determine from that what the effect is.

The COURT: Answer the question.

Exception No. 29.—Mr. MCCUTCHEN: Note an exception.

A. No; it would not be a practical machine. In the first place, it would require a man here to tilt the tub over, a man stand-
322 ing on the platform here to tilt it in when it was received—tilting the tub into the hopper. That is not all. It is calculated to discharge the entire contents into the cart and without

any control as to the quantity that could be delivered to the carts while the machine was working. It would be necessary to use that machine to entirely empty the contents unless, as I said, it was fine coal, which might be handled by shutting off here (referring to the bottom of the hopper). If there was one large lump and the gate shut on top of it, the balance would be all open; it would pass through—all that was in the box; there would be no check below to control the quantity that was desired. In the Plaintiff's "Exhibit 2" it is understood that you can deliver ten, fifteen, twenty, or thirty pounds if you want to through this process by the slightest lift of the gate. I applied for the first reissue letters patent because I was told by counsel that my patent did not properly cover my invention. I applied for my second reissue letters patent because Mr. Hall McAllister tried a case for me, and while I did get a judgment under it his statement was that I had better have the first reissue letters patent reissued, and so I applied to have that done. The case I refer to was the case of Martin R. Roberts against Flannigan.

Mr. BOONE: We have the record of that case right here, and we offer it in evidence, if the court please, the judgment-roll in the case No. 1420, filed in this court, wherein Martin R. Roberts was plaintiff and James Flannigan and others were defendants, filed March 10th, 1876.

Mr. ESTEE: We object to this testimony as irrelevant and immaterial and not competent under the pleadings. I object on the ground that the plaintiff is attempting to make out a case to bind us without our having an opportunity to respond.

323 The COURT: I will admit the testimony.

Exception No. 30.—Mr. MCCUTCHEN: Note an exception.

The WITNESS: Yes; this is the case of Roberts *vs.* Flannigan. Hall McAllister was my attorney in that case. After this litigation terminated he advised me to get another reissue of my patent.

Cross-examination:

The WITNESS: In this case we got a judgment of from three hundred and ninety dollars to four hundred and fifty dollars.

(By Mr. ESTEE:)

Q. Now, Mr. Roberts, you were the practical plaintiff in the case of The Excelsior Coal Company against E. D. Chandler, were you not?

A. I was.

Q. In that case you sued on this Sparks patent, didn't you?

Mr. BOONE: We object, if the court please.

Mr. ESTEE: The witness has just testified that the Sparks patent is worthless, and we propose to show that he alleged in the complaint filed in that case that the Sparks patent was new and original, and that the title stood in him, and that he did get a judgment in that case on the trial on the Sparks patent and on nothing else.

Mr. BOONE: We have not denied but that the Sparks patent was a new and original machine. Undoubtedly it was.

The COURT (after argument): The witness has testified here in regard to it, and you can cross-examine him in regard to any matter as to the practicability of the machine.

Mr. ESTEE: We offer to prove, on the cross-examination of this witness, that in the case of The Excelsior Coal Company against R. D. Chandler, a case tried in this court, that this witness, the real plaintiff in this action, sued R. D. Chandler for infringement of the so-called Sparks patent, the model of which he has just stated
324 was impractical; that he testified in that case—the record shows that he testified—that the Sparks patent was a new and useful invention; that he was the owner of it, and that the decree of the court was that it was new and useful and that it had been infringed, and that he obtained a judgment on the Sparks patent in that case.

The COURT: I think the testimony is relevant.

Exception No. 31.—Mr. ESTEE: Note an exception.

The witness went on to state as to the question of damages:

The Excelsior Coal Company has different sizes of coal screens; meshes they are called. In the particular instance testified to by Mr. Cornwall under some mistake a larger mesh than he thought he ordered was used, and whenever any mistakes of that kind intervened in the use of those screens I have always been extremely generous in allowing what they thought was a proper deduction. In this case I used a screen called "La Grande," which means "the large." I was not aware of it; it was done through other persons, and claimed a reduction and I simply allowed it.

(By Mr. ESTEE:)

Q. Haven't you screened coal up to within a very short time for various parties in the city for prices ranging from four to seven cents a ton?

A. No, sir.

Q. Have you not screened coal for Dunsmuir for prices ranging from four to seven cents a ton for most of the time or a large part of the time for the last two or three years?

A. No, sir.

Q. Have you done it at any time for Dunsmuir?

A. No.

Q. Have you screened coal for Dunsmuir for less than ten cents a ton?

A. Yes, sir.

Q. For how much?

A. They handled the machine themselves and took care of them——

Q. No, no; but how much?

325 A. I think Dunsmuir pays right through for average screens, if I am not mistaken. I would like to know more.

I didn't know this question was coming or I would have inquired particularly. I think he pays seven and a half cents a ton.

Q. Have you ever charged him any less than that?

A. No.

Q. Are you sure?

A. I think I could be sure on that, though I would rather have the secretary here to prove it.

Q. Have you ever charged him four cents or as low as four cents a ton?

A. No.

Q. Have you ever charged him as low as five cents a ton?

A. Whatever the price was originally started it is so now. I would rather have the secretary. He may have made some compromise, in some conditions, that the machinery supplied being out of gear or something; there may be some little discrepancies, but the company's rules are applied to Mr. Dunsmuir precisely the same as they are to Mr. Cornwall, with no exceptions.

Q. I want to know if you have charged Dunsmuir as low as five cents a ton for screening coal.

A. Nobody. There is no exception made. A direct charge to everybody, and I understand——

The COURT: Answer yes or no.

A. No. What is the question? Let me see what I am answering. I desire to be very careful.

Q. State to the court and jury if you have ever charged Charles R. Allen four cents a ton for screening coal.

A. No, sir; most decidedly no.

Q. State whether you have ever charged him less than ten cents a ton.

326 A. No, sir. As to screening coal for Mr. Allen, I will say yes; we have screened coal for five cents a ton, he furnishing the man, moving the screen, and the coal going through averaging, not screened. When he screened the coal and using his man we charged seven and a half cents. When he screens coal and I find the man it is ten cents; the use of the machine and he furnishing the man and the coal is averaging five cents, he paying for the moving. I have never screened coal for Charles R. Allen, except in the way I have explained, for five cents a ton. I have screened and furnished a man for seven cents a ton. It is five cents a ton when he attends to the man and pays for the moving of the machine. That is the rate.

The parties stipulated that the question as to whether the reissued patent sued on was for the same invention as that disclosed in the original patent and whether there was laches in applying for the same were questions of law to be determined by the court.

Testimony closed.

Mr. MCCUTCHEN: If the court please, for the purpose of putting the matter properly upon the record, we now ask the court to instruct the jury to render a verdict in favor of the defendant.

Exception No. 32.—(The court overruled the motion; to which ruling defendant saved an exception.)

(Counsel for plaintiff and defendant then proceeded to argue the case to the jury.)

After the argument of counsel the court instructed the jury as follows:

327 GENTLEMEN OF THE JURY: I join with counsel on both sides of this case in congratulating you at the near approach of the close of this trial, some statements having been made by them as to the length of time that has been taken up in the trial of this case. It is true that this trial has taken considerable time, but it is the duty of the court, always within legal bounds, to allow the greatest latitude to counsel on both sides in order that they may be able to fairly, fully, and clearly present the evidence upon which they rely to the jury. Some matters have intervened that have perhaps delayed the trial of this case a little longer than usual. They were matters, however, over which we had no control. It is also a matter of satisfaction to me to state that I have noticed that during the entire trial of this case you have paid strict, careful, and close attention to the evidence. Whatever the result may be, it has given me great pleasure to notice this fact, and it renders it unnecessary for me to undertake to refer, as I might otherwise have done, to the testimony that has been given in the case, for with the interruptions that have drawn my attention away at times from the case, arising on account of the illness of Judge Hoffman, of the district court, I have at times been unable to give as careful attention to the testimony as I might otherwise have done, and on that account I think you are able to remember the testimony more clearly than I would myself.

In giving you instructions in this case, for the reasons already stated, I shall confine myself pretty closely to the instructions which have been prepared by the respective counsel and handed to me, simply making such additions and changes and alterations and suggestions as seem to me to be necessary in order to fully and fairly present the law of this case to the jury.

328 The questions which you have to decide are questions of fact, in regard to which you are the sole and exclusive judges. In arriving at those facts and applying them it is, of course, your duty to take the law from the court.

I will now read to you such instructions as I deem pertinent and controlling from the facts in this case.

One of the defenses relied upon in this case is that the device or mechanism described in the plaintiff's patent is not a patentable invention. The design of the patent law is to reward those who make some substantial discovery or invention which adds to our knowledge and makes a step in advance in the useful arts. Such inventors are worthy of all favor, but, on the other hand, it is not the object of the law to grant a monopoly for every trifling device, every shadow of a shade of an idea, which would naturally and spontaneously occur to any skilled mechanic or operator in the or-

dinary progress of manufacturers. Such an indiscriminate creation of exclusive privileges, if allowed, would tend rather to obstruct than to stimulate invention. Unless you find the device or mechanism described in the plaintiff's patent to be a substantial discovery or invention, of which Captain Roberts was the first and original inventor, your verdict must, of course, be for the defendant.

Under the law a patent cannot be granted merely for a change of form, and if you should find from the evidence that the device described in plaintiff's patent consists merely of a change in form of some device or mechanism which was in public use or on sale more than two years before the date of the application for Captain Robert's patent, then I instruct you that the plaintiff cannot recover, and your verdict should be in favor of the defendant.

A mere carrying forward or a new or more extended ap-
329 plication of the original thought, a change only in form, proportion, or degree, the substitute of equivalents doing substantially the same thing in the same way by substantially the same means, is not such an invention as will sustain a patent. These rules apply alike, whether what preceded was covered by a patent or rested only in public knowledge or public use.

It is not enough in order to entitle one to a patent that a thing shall be new in the sense that in the shape or form in which it is produced it shall not have been known before, but it must amount to an invention or discovery. If you find from the evidence that the device described in the plaintiff's patent differs from others in use at the date of the application for said patent only in form or shape, I instruct you that it does not show any exercise of the inventive faculty and is not entitled to protection; but, in this connection, I also instruct you that shape and form when combined with other elements producing new and useful results are patentable.

If you believe from the evidence that the device or mechanism described as the Sparks machine (and which counsel have elaborated on both sides of this case before the jury) contains all the elements used in the device described in the plaintiff's patent, and that any mechanic skilled in the art to which said devices appertain could, without the exercise of inventive faculty, have produced plaintiff's machine after an acquaintance with the Sparks machine, then plaintiff's patent is not entitled to protection, and your verdict should be for the defendant; and what I have said with reference to the Sparks machine is also applicable to each of the other machines that have been testified about and introduced in evi-
330 dence in this case, whether the same were patentable or not. I merely mention that to avoid a repetition in the case of each patent.

In a patentable combination of old elements all the constituents must so enter into it as that each qualifies every other. It must form either a new machine of a distinct character and function or produce a result due to the joint and co-operating action of all the elements, and which is not the mere adding together of separate

contributions. The combination of old devices into a new machine without producing any new mode of operation is not invention.

The right of complainant to the Roberts patent rests upon the novelty of the means which Roberts, the patentee, contrived to carry his ideas into practical operation, and, if you believe from the evidence that the devices employed by him existed in the earlier patents or other devices in use and not patented, and that the only thing he did was to adapt these devices to the special purpose to which he contemplated their application by making such modifications as did not require invention, but only the exercise of ordinary mechanical skill, then he was not entitled to the patent for want of novelty, and you should find your verdict for defendant. But if the devices were so combined as to produce a new and useful result and required the faculty of invention not covered by prior patents or mechanism in public use, you should find in favor of the plaintiff.

A patentee is entitled to a patent for a new and useful machine. A patentee could patent a single device for accomplishing some new and useful purpose and may use several old elements that are already known and combine them together and still be entitled to a patent for the combination if it produces new and useful results. In considering the Roberts patent with the prior patents of others
331 offered in evidence by the defendant you must determine from the evidence whether or not the difference, if any, is only such as any mechanic in this class of machines could make without the exercise of the faculty of invention.

If you believe from the evidence that there was in use at the mine of the defendant in Contra Costa county more than two years prior to the application for plaintiff's patent a device which contained all of the elements which are found in plaintiff's machine, arranged substantially in the same way to perform the same office, then I instruct you that such device is not entitled to protection; and, in this connection, I charge you that the element of portability is not of itself patentable.

If you believe that for more than two years prior to the application for plaintiff's patent there was in public use or on sale any device for receiving, screening, and delivering coal which contained all of the elements found in plaintiff's machine, arranged substantially in the same way and performing substantially the same office, then I instruct you the plaintiff's patent was anticipated by such device, notwithstanding the fact that it may not have been portable. Merely increasing or decreasing the size of any part of a known machine is not invention.

If you find from the evidence that there was in use at the mine of the defendant in Contra Costa county more that two years prior to the application for plaintiff's original patent a device for receiving, screening, and delivering coal, and that a mechanic skilled in the art to which said device appertained, being acquainted therewith, could have constructed the machine used by the defendant on its wharf in San Francisco without the exercise of the inventive faculty, then I instruct you that such a device is not an in-
332 fringement upon plaintiff's patent, and your verdict should

be for the defendant. If you find from the testimony that, with the Sparks machine before him, a mechanic skilled in the art to which it appertained could without the exercise of the inventive faculty have constructed the machine used by the defendant in this case—that is, the machine which is alleged to infringe upon plaintiff's patent—then I instruct you that said last-named machine does not infringe upon plaintiff's alleged invention, and that your verdict must be in favor of the defendant.

Result alone is not the subject of a patent. To entitle a patent to protection it must not only produce a result, but that result must be useful, and it must be produced by some new and useful mechanism or device not known before plaintiff's invention.

A combination is anticipated by another whenever the same elemental means or their known equivalents under the same cooperative law have been in prior use in this country or have been patented or described in a printed publication either at home or abroad. In this case it is immaterial whether the prior combination was patented or not or whether it existed as a separate or independent means or merely as a subordinate part of a large combination; the possession of it by the public in any form recognizable by them deprives the latter combination of that legal novelty which is essential to the issue of a patent.

No combination can be a new invention and patentable as such unless it is the fruit of inventive skill. A substantial difference between combination does not, therefore, show that the latter combination is a true invention. Whether the new combination is formed by dropping elements from known combinations or
333 by adding new elements or by re-arranging existing elements, the question of invention and of patentability is still to be determined by the application of the same tests to which all other supposed inventions are subjected. If the latter combination is suggested by the former or has been arrived at by the gradual development of mechanical knowledge it is not a patentable invention, however useful or different it may be.

To constitute ident-y of mechanisms or ident-y of invention, and therefore infringement, not only must the result obtained be the same, but in case of a combination of known elements the elements must be the same, and they must be combined substantially in the same way, so that each element shall perform the same function.

As I have already stated to you, it is set up by the defendant as a defense that the patented invention was anticipated by several prior devices. Upon this point I instruct you as a matter of law that by the term anticipation is meant substantial identity—that is to say, for a prior device to be an anticipation of a patented invention it must be substantially identical with the patented device. This question of anticipation is a question of fact to be determined by you from the evidence submitted in this case—that is to say, you must determine as a fact from the evidence whether any of the prior devices shown to have been in existence before the date of plaintiff's patent were substantially identical with the patented device. Unless you find such identity, then the patent is not antici-

pated. In determining whether two devices are or are not substantially identical you must determine whether or not they produce substantially the same result in substantially the same manner. In this case, therefore, you will ascertain, first,
334 what is the result performed by the patented device of Captain Roberts, and, second, what is the manner in which that result is performed—that is to say, what is the mechanism or combination of elements by which that result is performed. Having determined these points, you will then consider the prior devices alleged to be anticipations and ascertain what is the result performed by them and what is the manner in which the result is performed—what is the mechanism or combination of elements by which the result is performed. If you find both the result and the means of performing that result in any of these prior devices to be substantially identical with the Roberts patented device, then there is an anticipation; but if you find that both the result and the means of accomplishing the result are different, then there is no anticipation.

One of the prior devices set up by the defendant as anticipation is a device claimed to have been in existence and use at the Black Diamond coal mine on Mount Diablo, in Contra Costa county, California, several years prior to the date of the Roberts invention. The evidence offered to prove that defense is testimony consisting of the recollection of witnesses. It is your duty to decide from this evidence whether or not such a device was actually in existence at the time and place alleged, and, if so, what was its character, construction, mode of operation, and function, and whether or not it was substantially identical with the patented device. In this connection I instruct you that *it* was the defendant's duty to prove the existence of such prior device and its character, construction, mode of operation, and function by evidence that is clear and convincing. The law requires that kind of proof in such cases, because the patent is *prima facie* evidence of its own validity and cannot be overthrown except by proof that is clear and convincing and be-
335 yond a reasonable doubt. If, therefore, you find that the defendant has not produced that character of evidence as to the Mount Diablo machine, then you will be justified in finding that the defendant has failed to prove an anticipation by the Mount Diablo machine.

Three other patents, prior in date to the Roberts invention, have been offered by defendant in evidence as anticipations. Those patents are the two patents of Sparks and the Plimsoll patent. If you believe that any one of those three devices is substantially identical with the Roberts device, then it is an anticipation; otherwise not. You will notice that this distinction runs through all the instructions which I have given you. In determining this question of anticipation I instruct you that a prior device cannot anticipate a patent if that prior device is fundamentally incapable of performing the function of the thing covered by the patent, even though the character of the prior device was in some respects mechanically similar to the patented thing.

It is sometimes difficult to determine what degree of improvement takes a case out of the mere exercise of mechanical judgment and skill and puts it in the domain of invention or discovery. As a general rule it may be safely said that any change in the position of old elements whereby new and better results are accomplished is a sufficient exercise of inventive faculty to warrant the issuing of letters patent.

Although devices to be found in the prior art closely approach the patented device, yet if they are devoid of the feature which gives life and value to the patented machine there is a sufficiency of invention in the patented thing, although the change from the prior art may be apparently small.

336 On yesterday there were argued some questions exclusively to the court, and it was stated that when the time arrived I would instruct the jury in regard to the law applicable to those questions pertaining or relating solely to the validity of the reissue patent. It was alleged by defendant that the second reissue patent, on which this suit is based, is not for the same invention as that shown in the original patent. That is a question of law, as I say, for the court to determine, and I instruct you that this second reissue patent is for the same invention as the original patent. Upon the other point I also instruct you that the patentee was not guilty of unreasonable or unnecessary delay in applying for and procuring said reissue.

In regard to the construction of plaintiff's patent, I instruct you that it is not limited to a device in which a screen is one of the elements—that is to say, it is not limited to a screening device, but it also includes a device for delivering coal from the hold of a vessel and passing it through a hopper, and a reservoir having a solid bottom and a chute and a regulating gate. Sometimes it is used as both a screening and delivering device; at others it is used simply as a delivering device, without screening. If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute which extends from the receiving hopper, instead of having a screen bottom, then I instruct you that such a device is also covered by the patent and is an infringement.

Now, the only question left on which I deem it necessary to give you any instruction is in regard to the question of damages, and it will be unnecessary for me to enter at any length upon that

337 question. The plaintiff is seeking for damages at your hands, and in order that you shall render a verdict for more than nominal damages, should you find the plaintiff's patent to have been infringed by the defendant, such facts must have been shown you as to enable you to determine what amount of damages the plaintiff has suffered; and if, from the facts shown, you are unable to determine that the plaintiff has suffered more than nominal damages, then your verdict must be for nominal damages only.

You are instructed that royalty is compensation paid for the use of a patented invention. If you find from the testimony that the plaintiff supplied its own machines, kept them in order, and em-

ployed a man to operate them, and discharged, screened, and delivered coal for ten cents a ton, such sum cannot be considered royalty for the use of plaintiff's invention, and you have no right to take that price into consideration in determining the amount of damages which may have been suffered by the plaintiff, unless from the testimony you are able to determine how much per ton it cost the plaintiff to discharge, screen, and deliver such coal.

If you find in favor of the plaintiff in this case, then, on the question of damages, you will first determine the number of tons of coal delivered from vessels and passed through the machines of defendant and loaded into carts, irrespective of whether that coal was screened or not in its passage through the machine. Then you will determine what were the usual rates charged by the plaintiff to the public generally for so delivering coal through its patented machine. Then you will determine the expenses incurred by plaintiff in so delivering coal through its machines, if there is any evidence as to what those expenses were. Having determined these points, you will multiply the number of tons of coal delivered by defendant through its machines by the usual rate per ton charged by
338 plaintiff to others and deduct from the result reached the expense or cost which plaintiff would have been put to in delivering that amount of coal through its machine, which expense and cost will be that usually incurred by plaintiff in so delivering coal through its machine, and the result thus reached will be the measure of plaintiff's damage.

I believe that the amount on the blackboard there is admitted by both parties to be the amount delivered through defendant's machine.

Mr. ESTEE: That is, the screened and unscreened.

The COURT: What is the amount? I cannot see it from here.

Mr. ESTEE: The amount is 168,875 tons unscreened and 7,743 tons screened.

Mr. BOONE: Or a total of 176,618 tons of coal that passed through their machines.

The COURT: Now, it is claimed by the plaintiff that Captain Roberts testified that his usual expense and cost for so delivering coal was $2.50 for every two hundred tons. You are the judges of the testimony, and you will remember what testimony was given. It is also claimed by the plaintiff that Captain Roberts also testified that when he first commenced operating his machine he charged twenty-five cents per ton for delivering coal through his machines, but on account of infringing competition by others he was compelled to reduce the price to fifteen cents and afterward to ten cents, which last-named rate he says is his present established and usual rate, which he charges and receives. Mr. Cornwall, on the other hand, claims that the plaintiff had sometimes charged ten cents and sometimes seven and a half; sometimes five and sometimes four, and he has produced two receipted bills rendered by
339 plaintiff for four cents. You have heard the testimony of Captain Roberts in regard to that matter, and it will be your duty to take into consideration the facts disclosed by the evi-

dence, and, having determined the facts, you can easily calculate the damages in the manner that I have already stated.

This, gentlemen of the jury, is all that I deem necessary to instruct you as to the facts of this case. It will be your duty when you retire to your room to select some one of your number as foreman. It requires a unanimous verdict of twelve men. If from your deliberations you should arrive at the conclusion from the evidence and from the law as given you by the court that the defendant is entitled to a verdict you will simply find a verdict that "We, the jury, find in favor of the defendant." If, on the other hand, by the same method of discussion and from the testimony and law as given you by the court, you should be of opinion that the plaintiff is entitled to a verdict in this case, then the form of your verdict should be, "We, the jury, find in favor of the plaintiff and assess the damages at the sum of" whatever amount you may think is established by the testimony. I hope you will continue in your deliberations in the same spirit as you have listened to the testimony in this case, and that when you retire to the jury-room you will fairly and fully and clearly consider all the evidence that has been submitted in this case and endeavor to do justice between the parties litigant in this case.

Counsel for defendant excepted to the instructions of the court as follows:

Exception No. 33.—Mr. McCutchen: We desire to except to that portion of your honor's charge to the effect that there was no unreasonable or unnecessary delay in the application for the reissue letters patent on which this suit was brought, and, further,
340 to that instruction which is to the effect that the invention described in the reissue letters patent is the same as that described in the original letters patent.

Exception No. 34.—We desire to except to that portion of your honor's charge which is to the effect that the device of plaintiff described in his patent is not confined to a screening device, and that by the use of a chute with a fixed solid bottom plaintiff's device was infringed by defendant.

Exception No. 35.—We except to that portion of the instructions which was to the effect that assuming the patent of plaintiff to be valid with the use of a device with a solid bottom for the delivery of coal without screening was an infringement of plaintiff's patent.

Exception No. 36.—We also except to the instructions of the court on the question of damages, and to the modification of the instructions asked by defendant on that subject.

The following instructions to the jury were asked for by defendant, but were refused by the court; to which refusal defendant's counsel duly excepted:

"If you believe from the evidence that the Sparks machine contains all of the elements of plaintiff's machine, and that the only difference between the two is that in the Sparks machine the gate is immediately under the hopper, and in plaintiff's machine it is at or near the end of the screen; then I instruct you that merely changing the

gate from the bottom of the hopper to the bottom of the screen does not constitute invention."

Exception No. 37.—(To which refusal defendant's counsel excepted.)

If you find from the evidence that the only difference between the Sparks machine and the plaintiff's machine is that in
341 the one the gate is at the bottom of the hopper and in the other at the bottom of the screen, then I instruct you that unless you find that it required the exercise of inventive faculty to change the gate from the bottom of the hopper to the bottom of the screen that plaintiff's patent was anticipated by the Sparks machine and that your verdict should be in favor of the defendant.

Exception No. 38.—(To which refusal to give said instruction defendant's counsel excepts.)

"Only the exact combination described and claimed in the patent is capable of infringement, and any variation in the elements or the co-operative law which leaves the claimed combination unappropriated does not invade the rights of the patentee. The use of less than all the elements or the union of the same elements under a different co operative law is not the employment of the patented invention."

Exception No. 39.—(To which refusal to give said instructions defendant's counsel excepted.)

Plaintiff's patent is for an improvement in coal screens and chutes. It thus appears that it was not the first coal screen or chute made. Being an improvement on machines already in existence, the various devices composing the machine being old and well known, the plaintiff cannot invoke the doctrine of equivalents as to the machine itself taken as a whole, because a combination is always an entirety, and in such cases the patentee cannot abandon a part and claim the rest, nor can he maintain a suit for infringement of all the parts or elements of his machine except one. I therefore instruct you that for the defendant to infringe it must use all the material elements of plaintiff's machine. The defendant's device may do the same thing in substantially the same way, and yet if it accomplishes this without using all the elements
342 composing the plaintiff's machine defendant is not an infringer.

Exception No. 40.—(To which refusal to give said instruction defendant's counsel excepted.)

If you believe from the evidence that the defendant did for any length of time use a device or mechanism containing all of the elements of plaintiff's alleged invention, arranged substantially in the same way and to perform substantially the same office, then it will become necessary for you to determine for what length of time the same was used by the defendant; and, in this connection, you are instructed that if defendant used its machine without any screen and without a metal blank or false bottom that such use was not an infringement of plaintiff's alleged patent or invention, and you must not take such use into consideration in ascertaining the amount of damages to which plaintiff is entitled, should you find it to be entitled to any damages whatever.

Exception No. 41.—(To which refusal to give said instruction defendant's counsel excepted.)

One of the elements of plaintiff's machine is a metal blank or false bottom to be placed over the screen in reservoir O. If you find from the evidence that the defendant's machine did not contain a screen or metal blank or false bottom, then I instruct you that it did not and could not infringe upon the patent of the plaintiff or the machine therein described.

Exception No. 42.—(To which refusal to give said instruction defendant's counsel excepted.)

If you find from the evidence that one of the machines constructed and used by the defendant did not contain a screen or metal blank or false bottom, then I instruct you that it did not infringe upon plaintiff's patent or the machine therein described.

343 Exception No. 43.—(To which refusal to give said instruction defendant's counsel excepted.)

You are instructed that by the false bottom or metal blank referred to in plaintiff's patent is meant something which is movable at pleasure and by which the screen in reservoir O can be converted into a chute, and if you find from the evidence that in the machines used by the defendant there was a fixed and permanent bottom composed of boards and securely nailed, then I instruct you that the same did not constitute an infringement of plaintiff's patent or the machine therein described.

Exception No. 44.—(To which refusal to give said instruction counsel for defendant excepted.)

The president of plaintiff has testified that the charge for receiving, screening, and delivering coal with his machine was ten cents a ton. If from the testimony you are unable to determine how much it cost the plaintiff to receive, screen, and deliver such coal, then you are instructed that the necessary elements to enable you to determine how much damage has been suffered by the plaintiff has not been shown you, and under those circumstances should you find an infringement your verdict can only be for nominal damages.

To which refusal to give said instruction counsel for defendant duly excepted.

The following instruction asked by defendant was modified by the court in leaving out the part in parenthesis; to which modification defendant's counsel excepts:

Exception No. 45.—Result is not the subject of a patent (and the fact that the device described in plaintiff's patent produces a useful result does not) entitle the patent to protection.

344 The following instructions asked by defendant were refused by the court:

I instruct you that if the original letters patent issued to Mr. Roberts on the 17th day of June, 1873, fully and clearly describe and claim a specific invention, complete in itself, so as not to be inoperative or invalid by reason of a defective or insufficient specification, a reissue cannot be had for the purpose of expanding and

generalizing the claim in order to embrace an invention not specified in the original.

Exception No. 46.—(To which refusal counsel for defendant excepts.)

No excuse is given for the delay by plaintiff in applying for the second reissue of his patent, nor is any actual inadvertence, accident, or mistake shown. The omission of subcombinations in the combinations claimed in the original patent, the existence of such combinations being apparent on the face of the original patent, was in law, on the facts in this case, such a dedication of them, if new to the public, that a reissue to cover such subcombinations in revocation of such dedication cannot be availed of to the prejudice of the rights acquired by the public.

Exception No. 47.—(To which refusal counsel for defendant excepts.)

If you find that plaintiff's second reissue was made merely to enlarge his claim, and that there was no clear mistake made by him in wording his original claims and specifications, and that the said second reissue was not made within a reasonably short period after the original patent was granted, namely, within two years, then you must find for the defendant.

Exception No. 48.—(To which refusal counsel for defendant excepts.)

345 If you find from the testimony that before the expiration of the plaintiff's patent it charged and received ten cents a ton for unloading, screening, and delivering coal, and that for that sum the plaintiff furnished the machine and supplied a man to operate it, and that since the expiration of the patent the plaintiff charged and received ten cents a ton for unloading, screening, and delivering coal under the same conditions as existed before the expiration of the patent, then you are instructed that you cannot take those matters into consideration in determining the amount of damages to which plaintiff may be entitled in this case, and you should find under those circumstances that the defendant has infringed the patent of the plaintiff. Your verdict can only be for nominal damages.

Exception No. 49.—(To which refusal counsel for defendant excepts.)

If the plaintiff, since the expiration of its patent, has received the same price for discharging, screening, and delivering as it did during the life of the patent, then the presumption is that such price is and was a reasonable compensation for labor actually performed by the plaintiff and not a royalty for the use of its machine.

(To which refusal counsel for defendant excepts.)

The verdict of the jury was as follows:

We, the jury, find in favor of the plaintiff and assess the damages at the sum of eighty-eight hundred thirty $\frac{90}{100}$ dollars ($8,830.90).

346 The plaintiff in error submits and makes the following assignment of errors:

Assignment of Errors.

I.

The court erred in admitting in evidence reissued letters patent No. 7341, dated October 10, 1876, which was the second reissued letters patent issued to Martin R. Roberts at the above date, because, in order to lay a foundation for the introduction of that patent, plaintiff should first present and introduce in evidence the original and the first reissued letters patent.

II.

The court erred in admitting in evidence, against defendant's objections, the model of plaintiff's second reissued letters patent—

(1.) Because it was not a correct model of the patented device sued on in this action, and

(2.) That it did not represent correctly the combination of devices forming the patent upon which this action was brought.

III.

The court erred in admitting in evidence (against defendant's objections) evidence of the portability of plaintiff's patented device, on the ground that the element of portability is not patentable.

IV.

The court erred in refusing to permit the defendant to cross-examine Martin R. Roberts, the patentee, in relation to his use of the Sparks machine, for the reasons—

(1.) Because it appeared that The Excelsior Coal Company, the plaintiff in this action, was the owner of said Sparks patent during all the time in which this alleged infringement occurred.

(2.) Because it appeared, further, that the said Sparks ma-
347 chine was a portable machine and used for the purpose of receiving coal from the holds of vessels and delivering to carts or other vehicles.

(3.) And because it was responsive to the testimony given by said M. R. Roberts in his direct examination and was proper and legitimate cross-examination.

V.

The court erred in sustaining the objections made by plaintiff to the question on cross-examination propounded by defendant to Martin R. Roberts, the patentee, as follows:

"Captain Roberts, the letters patent which are offered here in evidence by plaintiff and upon which this suit is brought appears to have been a second reissue. There was issued to you, then, another patent covering this invention or some portion of it, was there not?"

VI.

The court erred (against defendant's objections) in permitting the witness Roberts to testify as to what was an average day's work of his machine.

VII.

The court erred in refusing to permit Mr. Cornwall, a witness for the plaintiff and president of the defendant company, to describe, on cross-examination, the machine used by the defendant at its works, which he desired to have his carpenter reproduce in a portable shape, and also how long a time this machine had been at the Black Diamond mine.

VIII.

The court erred in refusing to permit the defendant to introduce in evidence the first Sparks patent, on cross-examination of Martin R. Roberts, he having previously testified in his examination-in-chief as to the character of the Sparks invention, and that it was not a useful or practical machine.

348 IX.

The court erred, after the closing of the testimony on behalf of plaintiff and upon motion of defendant's counsel, in refusing to instruct the jury to bring in a verdict for the defendant.

X.

The court erred as follows:

It appearing that the Sparks patent was a much older patent that the Roberts patent, upon which this suit was brought, and that the Sparks patent was acquired many years ago by the plaintiff, and that it long since expired, defendant's counsel endeavored to prove by Luther Wagoner, an expert introduced by the defendant, that a mechanic skilled in the art to which these machines relate could build the Roberts machine from having a knowledge of the Sparks machine without the exercise of any inventive faculty. An objection was made by the plaintiff to this testimony; which objection was sustained by the court, defendant excepting.

XI.

The court erred in refusing to permit Luther Wagner, an expert witness introduced by the defendant, to answer the following question propounded by defendant's counsel:

"You were asked by counsel for plaintiff this morning whether a hopper, such as the one represented on drawing, Exhibit "K," if built on the side of a hill to receive coal drawn on a car from a tunnel and dumped on there, would be like the plaintiff's machine. Now, I ask you whether, if a hopper with an upper gate and chute below it and a lower gate had been used either at a coal mine where coal was extracted from the mine or at any other place with a screen—

if a mechanic skilled in his art or skilled in the art to which
349 that machine appertained could produce a portable machine like the plaintiff's model without the exercise of inventive faculty."

(To which ruling defendant excepted.)

XII.

The court erred in refusing to allow Luther Wagner, an expert witness introduced by the defendant, to answer the following question propounded by defendant's counsel:

"Can a man skilled in his art—the art to which this peculiar mechanism belongs—after having seen the Sparks machine, the model of which is before you, make the plaintiff's machine as represented by the model before you (Exhibit 2) without the exercise of the inventive faculty or more than ordinary mechanical skill—that is, would it have required the exercise of the inventive faculty to have made the Roberts machine after having seen the Sparks machine?"

(To which ruling defendant excepted.)

XIII.

The court erred in holding that Exhibit "K" was not shown to be a correct representation of any machine ever known or constructed, and therefore ruling out testimony relative to the construction and the action of the device delineated in said exhibit.

(Exhibit K being a drawing of defendant's machine used at the Black Diamond coal mine.)

XIV.

The court erred in holding that L. W. Seeley, the witness and expert introduced on behalf of the plaintiff, was a mechanical expert:

(1.) On the ground that it was not shown that he was a mechanic or had ever had any mechanical training or experience.

(2.) That he had never seen this machine or any machine
350 like the plaintiff's in actual operation and did not know from personal observation how it operated.

XV.

The court erred in allowing L. W. Seeley, an expert on behalf of plaintiff, to testify to the jury that the original Roberts patent and the first and second reissues, being the patents upon which this suit was brought, were all for the same thing, and to give his opinion as to the identity or non-identity of the inventions or devices in the original and the various reissues on the ground:

(1.) That the patents themselves are the best evidence of these facts.

(2.) That it was improper and irrelevant for this witness to give his opinion to the jury as to the identity of the devices described in the various patents or of the patents themselves.

XVI.

The court erred (against the defendant's objections) in allowing plaintiff's counsel to ask the witness Seeley, who was introduced by plaintiff as an expert, the following questions: "In your judgment as an expert, would it require any invention to produce the Roberts machine (the one sued on) as an entire device, knowing these other devices which are in evidence, when the fact is shown that by means of the Roberts device a successful machine was devised for unloading vessels of coal, whereby the coal is received from a swinging tub or bucket, screened, if you desire it, or, if not desired, delivered automatically in such quantities as may be desired to a case, cart?" This was error:

(1.) Because the question does not take into consideration the fact that there are antecedent machines introduced in evidence in this which do the same thing as the Roberts machine.

(2.) The question assumed a state of facts that did not
351 exist in this case.

(3.) That the question is irrelevant and incompetent in this, that whether the device be a successful machine or not or whether the coal is received from a swinging tub or bucket or not is immaterial and irrelevant.

XVII.

The court erred in refusing to strike out the testimony in relation to the operation of the machine owned by the Oregon Improvement Company in which it was testified that the coal could not be controlled and thereby covered up the horse and cart used for the transportation of the same.

XVIII.

The court erred in permitting the witness Linehan, introduced by plaintiff to testify as an expert, relative to the practicability of the Sparks machine so called, when it was shown that he was not an expert and knew nothing of its operation.

XIX.

The court erred in permitting the witness Roberts to testify as to the suit of "Martin R. Roberts *vs.* James Flannigan *et al.*" brought in this court in March, 1876, on the ground that it is irrelevant and not competent under the pleadings, and that the papers in the case are the best evidence.

XX.

The court erred in not permitting defendant's counsel to cross-examine the witness Roberts in relation to the case of the "Excelsior Coal Company *vs.* R. D. Chandler," a case tried in this court, and in which this witness was the real plaintiff and in which the Sparks machine was charged by plaintiff to be the infringed ma-

chine (this witness having testified that the Sparks machine
352 is an impractical machine), and in which case it further appears that there was a judgment of this court that the Sparks patent had been infringed, and that it was a new and useful invention.

XXI.

The court erred, upon the close of all the testimony in the case and upon the request of defendant's counsel, to instruct the jury to render a verdict in favor of the defendant.

XXII.

The court erred in instructing the jury that there was no unreasonable or unnecessary delay in the application for there issued letters patent on which this suit was brought.

XXIII.

The court erred in instructing the jury that the invention described in the reissued letters patent upon which this action was brought was the same as that described in the original letters patent.

XXIV.

The court erred in instructing the jury as follows:

"I instruct you that plaintiff's patent is not limited to a device in which a screen is one of the elements—that is to say, it is not limited to a screen device, but it also includes a device for delivering coal from the hold of a vessel and passing it through a hopper and reservoir having a solid bottom and a chute and a regulating gate. Sometimes it is used as both a screening and delivering device; at others it is used simply as a delivering device without screening. If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and a chute which extends from the receiving hopper instead of having a screen bottom,
353 then I instruct you that such a device is also covered by the patent and is an infringement."

XXV.

The court erred in the instruction to the jury as to the measure of damages as follows:

"If you find in favor of the plaintiff in this case, then on the question of damages you will first determine the number of tons of coal delivered from vessels and passed through the machine of defendant and loaded into carts, irrespective of whether that coal was screened or not in the passage through the machine."

XXVI.

The court erred in giving the following instructions to the jury upon the measure of damages:

"You will determine what were the usual rates charged by the

plaintiff to the public generally for so delivering coal through its patented machine; then you will determine the expenses incurred by plaintiff in so delivering the coal through its machine, if there is any evidence as to what those expenses were. Having determined these points, you will multiply the number of tons of coal delivered by defendant through its machine by the usual rate per ton charged by plaintiff to others, and deduct from the result thus reached the expense or cost which plaintiff would have been put to in delivering that amount of coal through its machine."

XXVII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"If you believe from the evidence that the Sparks machine contains all of the elements of plaintiff's machine, and that the only difference between the two is that in the Sparks machine the
354 gate is immediately under the hopper and in plaintiff's machine it is at or near the end of the screen, then I instruct you that merely changing the gate from the bottom of the hopper to the bottom of the screen does not constitute invention."

XXVIII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"Only the exact combination described and claimed in the patent is capable of infringement, and any variation in the elements or the co-operative law which leaves the claimed combination unappropriated does not invade the rights of the patentee. The use of less than all the elements or the union of the same elements under a different co-operative law is not the employment of the patented invention."

XXIX.

The court erred in refusing to give the jury, when requested by defendant, the following instruction:

"Plaintiff's patent is for an infringement in coal screens and chutes. It thus appears that it is not the first coal screen or chute made, being an improvement on machines already in existence. The various devices composing the machine being old and well known, the plaintiff cannot invoke the doctrine of equivalents except as to the machine itself, taken as a whole, because a combination is always an entirety and in such cases the patentee cannot abandon a part and claim the rest nor can he maintain a suit for infringement of all the parts or elements of his machine except one. I therefore instruct you that for the defendant to infringe, it must use all the material elements of plaintiff's machine. The defendant's device may do the same thing in substantially the same way, and yet if it accomplishes this without using all the elements composing the plaintiff's machine defendant is not an infringer."

355

XXX.

The court erred in refusing to give the following instruction to the jury when requested by the defendant:

"If you believe from the evidence that the defendant did for any length of time use a device or mechanism containing all of the elements of the plaintiff's alleged invention, arranged substantially in the same way and to perform substantially the same office, then it will become necessary for you to determine for what length of time the same was used by the defendant, and in this connection you are instructed that if defendant used its machine without any screen and without a metal blank or false bottom that such use was not an infringement of plaintiff's alleged patent or invention and you must not take such use into consideration in ascertaining the amount of damage to which plaintiff is entitled should you find it to be entitled to any damages whatever."

XXXI.

The court erred in refusing to give to the jury, when requested by defendant, the following instruction:

"One of the elements of plaintiff's machine is a metal blank or false bottom to be placed over the screen in reservoir O. If you find from the evidence that the defendant's machine did not contain a screen or false bottom or metal blank, then I instruct you that it did not and could not infringe upon the patents of plaintiff or the machine therein described."

XXXII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instructions:

"If you find from the evidence that one of the machines constructed and used by defendant did not contain a screen or metal blank or false bottom, then I instruct you that it did not infringe upon plaintiff's patent or the machine therein described."

356

XXXIII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"You are instructed that by the false bottom or metal blank referred to in plaintiff's patent it meant something which is movable at pleasure and by which the screen and reservoir 'O' can be converted into a chute, and if you find from the evidence that in the machine used by the defendant there was a fixed and permanent bottom composed of boards and securely nailed, then I instruct you that the same did not constitute an infringement of the plaintiff's patent on the machine therein described."

XXXIV.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"The president of the plaintiff has testified that the charge for receiving, screening, and delivering coal with his machine was ten cents per ton. If from the testimony you are unable to determine how much it cost the plaintiff to receive, screen, and deliver such coal, then you are instructed that the necessary elements to enable you to determine how much damage has been suffered by the plaintiff has not been shown, and under those circumstances, should you find an infringement, your verdict can be only for nominal damages."

XXXV.

The court erred in modifying the following instruction to the jury asked by the defendant, which instruction and modification are as follows:

"Result is not the subject of a patent, and the fact that the device described in plaintiff's patent produced a useful result does not entitle the patent to protection."

The error complained of consisted in striking out of said
557 instruction the words "and the fact that the device described in plaintiff's patent produces a useful result does not."

XXXVI.

The court erred in refusing to give to the jury, when requested by defendant, the following instruction:

"I instruct you that if the original letters patent issued to Mr. Roberts on the 17th day of June, 1873, fully and clearly described and claimed a specific invention, complete in itself, so as not to be inoperative or invalid, by reason of a defective or insufficient specification, a reissue cannot be claimed for the purpose of expanding and generalizing the claim in order to embrace an invention not specified in the original."

XXXVII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"No excuse is given for the delay by plaintiff in applying for the second reissue of his patent, nor is any actual inadvertence, accident, or mistake shown. The omission of subcombinations in the combinations claimed in the original patent, the existence of such combination being apparent on the face of the original patent, was in law, on the facts in this case, such a dedication of them, if new, to the public that a reissue to cover such subcombinations in revocation of such dedication cannot be availed of to the prejudice of the rights acquired by the public."

XXXVIII.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"If you find that plaintiff's second reissued patent was made

merely to enlarge his claim, and that there was no clear
358 mistake made by him in wording his original claim and specifications, and that the second reissue was not made within a reasonably short period after the original patent was granted, namely, within two years, then you must find for the defendant."

XXXIX.

The court erred in refusing to give to the jury, when requested by the defendant, the following instruction:

"If the plaintiff since the expiration of its patent has received the same price for discharging, screening, and delivering coal as it did during the life of the patent, then the presumption is that such price is and was a reasonable compensation for labor actually performed by the plaintiff and not a royalty for the use of its machine."

ESTEE, WILSON & McCUTCHEN &
JOHN H. BOALT,
Att'ys for Defendant in said Action.

Endorsed: Service of a copy of the within bill of exceptions and assignment of error admitted this 1st day of May, A. D. 1891. Jno. L. Boone, attorney for plaintiff. Defendant's proposed bill of exceptions and assignments of error. Filed May 1, 1891. L. S. B. Sawyer, clerk, by F. D. Monckton, deputy clerk.

359 It is hereby stipulated and agreed by and between the parties hereto that the foregoing bill of exceptions is correct, and that the same may be settled, allowed, and filed, time being waived by both parties.

May 19th, 1891.

JNO. L. BOONE, *Att'y for Plaintiff.*
ESTEE, WILSON & McCUTCHEN,
Att'ys for Defendant, &
JOHN H. BOALT, *Also Att'y for Def't.*

The foregoing bill of exceptions is hereby settled and allowed by me this 21st day of May, 1891.

(Signed) THOMAS P. HAWLEY,
U. S. Judge.

Endorsed: Settled, allowed, and filed as defendant's bill of exceptions, &c., May 21, 1891. L. S. B. Sawyer, clerk, by F. D. Monckton, deputy clerk.

360 *Bond on Writ of Error.*

In the Supreme Court of the United States.

EXCELSIOR COAL COMPANY, Complainant,
vs.
BLACK DIAMOND COAL MINING COMPANY, Respondent.

Know all men by these presents that we, The Black Diamond Coal Mining Company, a corporation, as principal, and Alvinza Hayward and Thomas Bell, of the State of California, as sureties, are held and firmly bound unto the Excelsior Coal Company, a corporation of the State of California, in the sum of fifteen thousand dollars, to be paid to the said Excelsior Coal Company, its successors or assigns; to which payment, well and truly to be made, we bind ourselves and each of us, jointly and severally, and our and each of our successors, assigns, executors, and administrators, firmly by these presents.

Sealed with our seals and dated this 24th day of April, A. D. 1891.

Whereas the above-named Black Diamond Coal Mining Company has prosecuted a writ of error in the Supreme Court of the United States to reverse the judgment rendered in the above-entitled action by the circuit court of the United States in and for the northern district of California, ninth circuit:

Now, therefore, the condition of this obligation is such that if the above-named Black Diamond Coal Mining Company
361 shall prosecute its writ of error to effect and shall answer all costs and damages if it fail to make its plea good, then this obligation shall be void; otherwise to remain in full force and virtue.

THE BLACK DIAMOND COAL MINING COMPANY.
[SEAL.] By GEORGE STAACKE, *Secretary.*
ALVINZA HAYWARD. [SEAL.]
THOMAS BELL. [SEAL.]

Signed, sealed, and delivered in the presence of—

——.

UNITED STATES OF AMERICA, } ss:
District of California, }

Alvinza Hayward and Thomas Bell, being duly sworn, depose and say and each for himself says that he is worth the sum of fifteen thousand dollars over and above all his just debts and liabilities.

ALVINZA HAYWARD.
THOMAS BELL.

Subscribed and sworn to before me this 24th day of April, 1891.
[SEAL.]
GEO. T. KNOX,
Notary Public.

I hereby approve the above bond and the sufficiency of the sureties thereto.

THOMAS P. HAWLEY, *Judge.*

Endorsed: Filed April 24, 1891. L. S. B. Sawyer, clerk.

362 In the Circuit Court of the United States, Ninth Judicial Circuit, Northern District of California.

EXCELSIOR COAL COMPANY
vs.
BLACK DIAMOND COAL COMPANY. } No. 10247.

I, L. S. B. Sawyer, clerk of the circuit court of the United States of America of the ninth judicial circuit in and for the northern district of California, do hereby certify the foregoing three hundred and sixty-one written and printed pages, numbered from 1 to 361, inclusive, to be full, true, and correct copy of the record and of the proceedings in the above and therein entitled cause, and that the same together constitute the return to the annexed writ of error.

Seal U. S. Circuit Court, Northern Dist. Cal.

In testimony whereof I have hereunto set my hand and affixed the seal of the said circuit court this 14th day of June, A. D. 1891.

L. S. B. SAWYER,
Clerk U. S. Circuit Court, Ninth Judicial Circuit, Northern District of California.

363 UNITED STATES OF AMERICA, *ss:*

The President of the United States of America to the honorable the judges of the circuit court of the United States, ninth circuit, northern district of California, Greeting:

Because in the record and proceedings, and also in the rendition of the judgment of a plea which is in the said circuit court, before you, between Excelsior Coal Company, plaintiff, and Black Diamond Coal Mining Company, defendant, a manifest error hath happened, to the great damage of the said Black Diamond Coal Mining Company, as by its complaint appears, and it being fit that the error, if any there hath been, should be duly corrected and full and speedy justice done to the parties aforesaid in this behalf, you are hereby commanded, if judgment be therein given, that then, under your seal, distinctly and openly, you send the record and proceedings aforesaid, with all things concerning the same, to the Supreme Court of the United States, together with this writ, so that you have the same at Washington on the 23d day of June, 1891, in the said Supreme Court to be there and then held, that, the record and pro-

ceedings aforesaid be inspected, the said Supreme Court may cause further to be done therein to correct that error what of right and according to the law and custom of the United States should be done.

Witness the Hon. Melville W. Fuller, Chief Justice of the Supreme Court of the United States, this 24th day of April, in the year of our Lord one thousand eight hundred and ninety-one, and of the Independence of the United States the one hundred and fifteenth.

Seal U. S. Circuit Court, Northern Dist. Cal.

L. S. B. SAWYER, *Clerk.*

The above writ of error is hereby allowed.

THOMAS P. HAWLEY, *U. S. Judge.*

364 *The Answer of the Judges of the Circuit Court of the United States, of the Ninth Judicial Circuit in and for the Northern District of California.*

The record and all proceedings of the plaint whereof mention is within made, with all things touching the same, we certify under the seal of our said court to the Supreme Court of the United States of America within mentioned, at the day and place within contained, in a certain schedule to this writ annexed, as within we are commanded.

By the court:

[Seal U. S. Circuit Court, Northern Dist. Cal.]

L. S. B. SAWYER, *Clerk.*

365 [Endorsed:] No. 10247. In Supreme Court U. S. Black Diamond Coal Mi. Co., plaintiff in er., *vs.* Excelsior Coal Co., defendant in er. Writ of error. Filed April 24, 1891. L. S. B. Sawyer, clerk U. S. cir. court, nor. dist. Cal. Estee, Wilson & McCutchen & John H. Boalt, No. 419 California street, San Francisco, attorneys for plaintiffs in error.

366 United States of America to the Excelsior Coal Company, Greeting:

You are hereby cited and admonished to be and appear at the Supreme Court of the United States, to be held at the city of Washington, in the District of Columbia, on the 23d day of June, 1891, pursuant to a writ of error filed in the clerk's office of the circuit court of the United States, ninth circuit and northern district of California, wherein The Black Diamond Coal Mining Company is plaintiff in error and you are defendant in error, to show cause, if any there be, why the judgment rendered against the said plaintiff in error in the said writ of error mentioned should not be corrected and speedy justice should not be done to the parties in that behalf.

Witness the Honorable Thomas P. Hawley, U. S. district judge, district of Nevada, assigned to hold and holding U. S. circuit court

for the northern district of California, this 24th day of April, A. D. 1891, and of the Independence of the United States the one hundred and fifteenth.

THOMAS P. HAWLEY,
U. S. Judge.

367 [Endorsed:] No. 10247. Supreme Court United States. Black Diamond Coal Mining Co., plaintiff in error, *vs.* Excelsior Coal Co., defendant in error. Citation. Service of the within citation this 24th day of April, 1891, is hereby admitted. Jno. L. Boone, att'y for def't in error. Filed April 24th, 1891. L. S. B. Sawyer, clerk U. S. circuit court, nor. dist. Cal. John H. Boalt and Estee, Wilson & McCutchen, No. 419 California street, San Francisco, attorneys for plaintiff in error.

Endorsed on cover: Case No. 14,698. N. California C. C. U. S. No. 200. The Black Diamond Coal Mining Company, plaintiff in error, *vs.* The Excelsior Coal Company. Filed June 22, 1891.

Office Supreme Court, U. S.
FILED.
NOV 19 1894
JAMES H. McKENNEY,
CLERK.

IN THE SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL MINING COMPANY,
Plaintiff in Error.

vs.

EXCELSIOR COAL COMPANY,
Defendant in Error.

M. M. ESTEE,
For Plaintiff in Error.

IN THE SUPREME COURT

OF THE

UNITED STATES.

OCTOBER TERM, 1894. No. 200.

BLACK DIAMOND COAL MINING CO.,
Plaintiff in Error,
vs.
EXCELSIOR COAL COMPANY,
Defendant in Error.

BRIEF OF PLAINTIFF IN ERROR.

Statement of Facts.

This is an action at law brought by the Excelsior Coal Company, a corporation, against the Black Diamond Coal Mining Company, another corporation, in the Circuit Court of the United States for the Northern District of California, for the infringement of a re-issued patent.

The case was tried before a jury, and resulted in a verdict of $8,830.90 for the plaintiff, for which with costs, judgment was entered. To

review that judgment the defendant has brought a writ of error.

The patent in suit is re-issue No. 7,341, dated October 10, 1876, and applied for July 10, 1876. The original patent was No. 140,077, dated June 17, 1873, *three years, three months and twenty-three days* prior to application for the re-issue. During the interim there had been a prior reissue, No. 6,211, dated January 5, 1875. Hence the patent in suit is a re-issue of a re-issue, or a second re-issue of the original. To put the matter in a tabulated form we have:

Original.	1st Re-Issue.	2d Re-Issue.
No. 140,077.	No. 6,211.	No. 7,341.
Dated Jun. 17, 73.	Dated Jan. 5, 75.	Dated Oct. 10, 76.
	Appld for Aug. 4, 73.	Appld for Jul. 10, 76.

We thus see that the first re-issue was applied for *one month and seventeen days*, and was issued *one year, six months, and nineteen days* after the date of the original. The second re-issue was applied for *one year, six months, and five days* from the date of the first re-issue and *three years, three months, and twenty-three days* from the date of the original patent.

Inasmuch as the validity of the second re-issue must depend upon the original patent, the intermediate or first re-issue cuts but little figure in the case, and may be eliminated from consideration. Hence, we have for review the case of a

re-issue, which was applied for over *three years and three months* after the date of the original patent.

The questions involved on this hearing relate to the validity of the patent sued on, its infringement by plaintiff in error, and the measure of damages. Those questions are raised by instructions which were asked and refused, by instructions which were given, by exceptions to the introduction of testimony, by an examination of the patents themselves, and by refusal of the Court to instruct the jury to render a verdict for defendant.

The following is a

SPECIFICATION OF ERRORS RELIED ON.

1. The Court erred in holding that the patentee was not guilty of unreasonable or unnecessary delay in applying for the re-issued patent sued on, and instructing the jury to that effect.

2. The Court erred in holding that the re-issued patent was for the same invention as the original and instructing the jury to that effect.

3. The Court erred in the construction which it gave to the patent sued on, and the claims thereof.

4. The Court erred in the instructions which it gave touching the question of infringement.

5. The Court erred in the instructions which it gave touching the measure of damages and the manner of computing the same.

6. The Court erred in refusing to instruct the jury to render a verdict for defendant.

Points and Authorities.

I.

THE RE-ISSUED PATENT SUED ON IS VOID, BECAUSE OF UNREASONABLE AND UNNECESSARY DELAY IN APPLYING FOR THE SAME.

This patent is No. 7,341. It was applied for on July 10, 1876, and issued on October 10, 1876. The original patent is No. 140,077, and is dated June 17, 1873 (Record 11). The time which elapsed between the date of the original patent and the application for the re-issue was *three years, three months, and twenty-three days*. The descriptive parts of the two specifications are practically the same, the main difference being that in the re-issue there is inserted, as a preamble, a fuller statement of the prior art.

The Invention Patented.

The following cut represents the device shown in the drawings of the patent:

Fig. 1

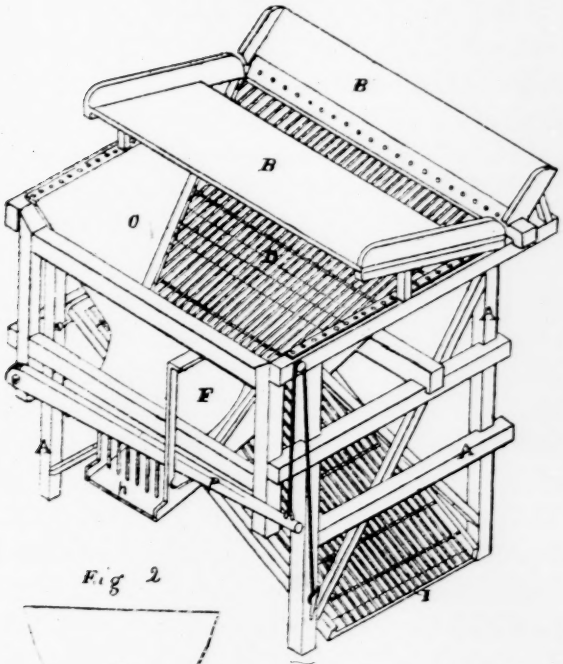


Fig 2

The following is the specification of the patent:

"To all whom it may concern:

"Be it known that I, Martin R. Roberts of the City and County

of San Francisco, and State of California, have invented certain new and useful improvements in a combined portable hopper, chute and screening apparatus; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention without further invention or experiment.

"Previous to my invention, in unloading vessels of coal, the coal has, for the most part, been hoisted from the hold over the bulwarks, and dumped upon the wharf or upon the coal previously dumped, or, if chutes were used, such chutes were fixed; nor, so far as I am aware, has a movable chute ever been known or used by which the coal could be received from the vessel at any point in the wharf and be screened and delivered to the cart.

"My invention consists of a portable apparatus for receiving coal from the bucket by which it is hoisted from the hold of a ship, and for screening and delivering it to carts on the wharf, said apparatus being adapted for ready removal from place to place, when required.

"By this apparatus I am able to save repeated handlings and consequent expense and the breakage of the coal, and the apparatus can be changed from one point to another where the vessel may be placed.

"There are further and subordinate objects to be secured by my invention, and the improved details devised for these purposes will be set forth more fully hereafter.

"In the drawings, AA represents a strong frame, which, is properly stayed and braced, so as to withstand the concussion to which it will be subjected. At one side of the top of this frame I secure two boards, BB', at an obtuse angle to each other, in the form of a trough, but leave their lower ends separated so as to provide a space, C, between them, for the purpose hereinafter described. These boards form what I call the hopper. The board B' forms an extension to one side, D, of a large reservoir, O, which is located in the body of the frame below the hopper. This side, D, of the large reservoir, slopes toward the opposite side of the frame and is constructed of parallel wires secured at short distances apart so as to form a screen over which the coal or other substance must pass in descending from the hopper to the reservoir, and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted toward its lower end and a chute, F, extends from it out over the opposite side of the frame from that on which the upper hopper is located. A gate, *h*, which will be more fully described hereafter, serves to retain the coal in the chute and

reservoir until it is desired to allow it to pass from the chute into the cart or other vehicle. An independent grate or screen, I, of finer mesh than the grate D, is secured in an inclined position in the frame AA, below the screen D, so as to receive the particles of coal or other substance which pass through the upper screen and which serves to again separate it into two grades. This screen stands at an angle transversely to the upper screen, so that the particles which pass down it, on account of not being small enough to pass through the meshes, will be carried off to one side of the machine, while the finer portions which pass through the screen will fall upon the floor or wharf directly under the frame. Two or more of these screens can be used, and the size of the meshes can be varied according to the substance to be cleaned, and the number and quality of the grades into which it is desired to separate the substance being discharged.

"The frame AA will be mounted upon small wheels, so that it can be moved from one place to another upon a wharf, in order to be placed in position to receive the discharging cargo of different ships; but when moving it from one wharf to another, I employ axles across each end of the frame, upon which strong wheels are placed, so that the entire machine can be drawn along similar to any vehicle.

"The hopper BB' is as long as the machine, and is made wide, so that when care is used in dumping it is certain to catch all the coal poured from the swinging tub. This hopper is also placed high on the machine and but slightly above the inclined side of the reservoir, so that the coal has but a short distance to fall and is thereby prevented from being broken and pulverized. The outlet of the hopper BB' extends entirely across the upper end of the side or screen D, by which arrangement the passing coal is distributed over the entire width of D, and has to pass its entire length, thus insuring a thorough screening of the coal. The construction and location of this hopper BB' make it a success in receiving the contents of the bucket by which the coal is hoisted from the hold of the vessel, a result which I believe was never before accomplished by any hopper.

"By placing the reservoir O in its peculiar position, and making it large, several advantages are obtained. Among others a large screening surface is obtained. The gate *h* is sufficiently high from the wharf to allow vehicles to be placed so as to receive the coal direct as it is discharged from the chute, so as to save reloading it from the wharf; and the reservoir O is large enough to serve as a store room, so that, in case of temporary delay in the vehicle carrying the coal to the yards, the work of unloading the

ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

"When it is not desired to screen the article or substance to be unloaded a false bottom or metal blank, K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away.

"The gate or cut-off which I use consists of a lever bar, *p*, which has one end pivoted to the frame, so that it will extend transversely across above the end of the chute. Metal teeth, *h*, extend downward across the mouth of the chute, so as to bar the entrance. When the cart is in position beneath the chute, the free end of the lever is raised so as to clear the teeth from the mouth of the chute, and allow the substance to pass through by its gravity into the cart.

"From the practical success which has attended my invention, I believe its introduction will make it profitable to ship other substances, such as cobblestones, gravel, etc., and assort them while unloading the ship.

"By this arrangement coal can be discharged from ships, screened and loaded into carts, not only at a great saving of expense in handling it, but with less wastage, as the large and more marketable pieces or lumps will not be broken when dumped in this machine, as they always are to a greater or less extent when dumped from the height of twenty or thirty feet upon the wharf or coal pile.

"Having described my invention, what I claim and desire to secure by letters patent, is:

"1. A portable combined coal receiving, screening and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described.

"2. The receiving hopper BB', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described.

"2. The metal blank or false bottom K, in combination with the receiving-hopper BB', reservoir O, chute F, and gate *h*, substantially as and for the purpose above described.

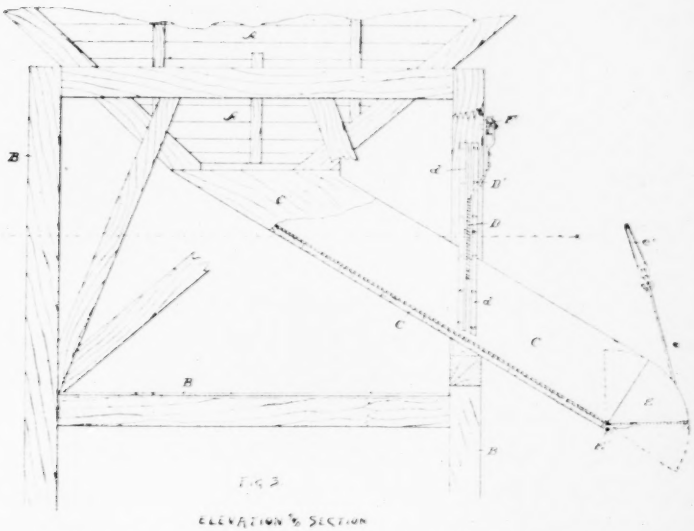
"4. The combination of the hopper BB', for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h*, all constructed to operate substantially as and for the purpose set forth.

"5. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially as is herein set forth.

MARTIN R. ROBERTS.

Witnesses:
J. L. BOONE,
CHAS. G. PAGE."

The following cut represents the alleged infringing device used by the plaintiff in error, being reproduced from a drawing offered in evidence by the defendant in error at the trial. (Record 40).



A A is a large square hopper having an open bottom. With this bottom is connected a long chute set at an angle and having a permanent, solid, and immovable wooden bottom. Midway

of this chute is a gate *d* for regulating the flow of the coal; and at the lower extremity of the chute is an apron E, which, when lowered, forms an extension of the chute into the cart standing underneath. Coal is dumped into the hopper, flows down the chute by gravity, passes through the regulating gate *d*, and thence into the cart. There is no *reservoir* O, unless the hopper and chute constitute one. Nor is there any screen of any kind whatever in the machine. The bottom of the chute is solid, fixed and permanent, being a part of the organic structure of the device. There is no screen bottom, no *metal, blank or false bottom*. Neither is there "one or more independent screens I", or any pretense thereof. In fact, the machine *is not a screening device*. It uses no screen in any form. It delivers coal unscreened. The defendant in error does not question this.

The original patent contained two claims. One of those two claims, with certain modifications and expansions, is repeated in the re-issue, and four new claims are added. For convenience of reference we herewith reproduce the two sets of claims in parallel columns, putting the new matter in italics:

ORIGINAL 140,077.

1. The receiving hopper BB, in combination with the hopper O, with the screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above specified.

2. The metal blank, or false bottom K, in combination with the hopper O, chute F and gate *h*, substantially as and for the purpose above described.

(Record, p. 58.)

RE-ISSUE 7,341.

1. *A portable combined coal receiving, screening and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described.*

2. The receiving hopper BB', in combination with the *reservoir* O, with *its* screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose described.

3. The metal blank or false bottom K, *in* combination with *the receiving hopper BB', reservoir* O, chute F, and gate *h*, substantially as and for the purpose described.

4. *The combination of the hopper BB' for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate h, all constructed to operate as and for the purpose set forth.*

5. *In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate h, the combination being substantially as herein set forth.*

(Record 13.)

It will thus be seen that the object of the re-issue was to expand the old claims and add new

ones, and that the application for the re-issue was delayed for *more than two years* after the date of the original patent. This raises the question of unreasonable and unnecessary delay, and throws on the patentee the burden of excusing the same.

The doctrine of re-issues is too well settled now to admit of question. The repeated adjudications of this Court since the pioneer case of *Miller* vs. *The Brass Co.* place the matter beyond the pale of doubt. According to those decisions it is a settled rule, that, in applying for a re-issue, the patentee must not be guilty of any unreasonable or unnecessary delay, and, if the re-issue is had for the purpose of expanding the claims, a delay of two years or more, unless satisfactorily accounted for, is fatal to the validity of the re-issue.

Miller vs. *The Brass Co.*, 104 U. S., 350.
Clements vs. *Odorless Co.*, 109 *Id.*, 649.
Mahn vs. *Harwood*, 112 *Id.*, 354.
Wollensak vs. *Reiher*, 115 *Id.*, 96.
Ives vs. *Sargent*, 119 *Id.*, 661.
Hoskin vs. *Fisher*, 125 *Id.*, 96.
Electric, etc., Co. vs. *Boston E. Co.*, 139 *Id.*, 501.
Topliff vs. *Topliff*, 145 *Id.*, 171.

The above cited case of *Hoskin* vs. *Fisher* bears marked resemblance to the case at bar.

There, as here, the re-issue had been applied for after the lapse of two years from the date of the original patent, and for the purpose of expanding the claims. No excuse was offered for this delay.

In deciding the case, this Court said:

"Where a re-issue expands the claims of the original patent, and it appears that there was a delay of two years or more in applying for it, the delay invalidates the re-issue *unless accounted for and shown to be reasonable*. These principles are applicable to the present case and require that the decree of the Circuit Court should be reversed. *The delay is not accounted for by the plaintiff nor shown to be reasonable.*"

The same language may be applied to the case at bar. The patent was re-issued with expanded claims. The delay was over two years. *Yet the plaintiff offered no testimony to explain it.* The record is barren on the subject. To use the precise language of this Court: *The delay is not accounted for by the plaintiff, nor shown to be reasonable.*

It follows, therefore, that the patent is void on the ground of laches in applying for the re-issue.

The lower Court instructed the jury on this point as follows:

"Upon the other point I also instruct you that the patentee was not guilty of unreasonable or unnecessary delay in applying for and procuring said re-issue." (Record 192.)

That instruction was error, for the reason that no excuse for or explanation of the delay was offered or even attempted, and, since the delay was over two years, as matter of law it was un-

reasonable. Exception was duly taken (see Exception No. 33, page 194, Record), and we now insist that it is good.

There is a point by which the defendant in error may attempt to meet this argument, and hence we anticipate it.

It appears that the patent in suit is a *second* re-issue, there having been a prior first re-issue of the original patent. That first re-issue was applied for on August 4, 1873, and was granted on January 5, 1875 (Record 47). It contained the following claims:

"1. The receiving hopper BB', in combination with the reservoir O, with its screen or grating side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose described.

"2. The metal blank or false bottom K, in combination with the receiving hopper BB', reservoir O, chute F, and gate *h* substantially as and for the purpose above described.

"3. The combination of the hopper BB' for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate H, all constructed to operate substantially as and for the purpose set forth.

"4. In combination with the elongated hopper, the screen D, reservoir O, and chute F, with its gate *h*, the combination being substantially such as is herein set forth."

Afterwards on July 10, 1876, or *one year six months and five days* from date of the first re-issue, application was made for the second re-issue. The second re-issue repeats the four claims of the first re-issue and adds an additional claim (Claim 1), which reads as follows:

"A portable combined coal receiving, screening and delivering apparatus, arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as described."

It may possibly be urged by defendant in error that the only delay with which he is chargeable and which must be explained, is the delay occurring between the date of first re-issue (January 5, 1875) and the application for second re-issue (July 10, 1876), which was *one year, six months, and five days*, and that said delay was not so unreasonable as to invalidate the new Claim 1, which was not in either the original patent or the first re-issue; or, if said delay was so unreasonable as to invalidate said new Claim 1, still the other four claims are not liable to the objection we are urging, because they were in the first re-issue, which was applied for within a few days from date of the original patent. This latter contention is based on the proposition that valid claims of an original patent may be repeated in a re-issue and will be upheld, although additional new claims may be invalid.

Conceding this as a general proposition, still we are entitled to a reversal.

Claim 1 of the patent in suit is clearly void. It was not in the original nor in the first re-issue. Certainly then as to that claim, the delay to be

explained reaches back to the original patent. Of this there can be no doubt. Said Claim 1 is invalid beyond all question, because there was an unexplained delay of more than three years in applying for it. Now, as the plaintiff below charged an infringement of said Claim 1, and as the jury found an infringement thereof, as well as of the other claims, and awarded a lump sum as damages for infringement of all the claims, clearly a portion of said damages must have been awarded for infringement of Claim 1. Those damages were not segregated between the different claims. How much was attributable to any one particular claim is not known. If we were to speculate on the matter, we might be justified in concluding that Claim 1 was the most important of them all, since it is the broadest, and the re-issue was taken out solely for the purpose of procuring it, and that therefore the larger proportion of the damages was awarded for infringement of that claim. But it is not necessary to indulge in speculation, for where a jury finds damages in a lump sum for infringement of several claims, and there is nothing in the record by which said damages can be segregated between the claims, if any one of said claims be found invalid, then the judgment must be reversed and a new trial had on the valid claims alone.

It is the same principle which prevails where damages and profits are calculated on the entire machine when the patent covers only a part of the machine.

Or, to express it in another way: A party cannot recover as damages the profits to be derived from the manufacture of the whole machine when only a portion of the same is covered by the patent.

Garrettson vs. *Clark*, 111 U. S., 120.
Dobson vs. *Bigelow Carpet Co.*, 114 *Id.*, 440.
Philp vs. *Nock*, 17 Wall., 460.
Hunt vs. *Cassidy*, 53 Fed. Rep., 261.
Keystone Co. vs. *Adams*, 151 U. S., 147–8.

In rendering the decision of this Court in the above cited case of *Garrettson* vs. *Clark*, Mr. Justice Field said:

"When a patent is for an improvement, and not for an entirely new machine or contrivance, the patentee must show in what particulars his improvement has added to the usefulness of the machine or contrivance. He must separate its results distinctly from those of the other parts, so that the benefits derived from it may be distinctly seen and appreciated. The rule on this head is aptly stated by Mr. Justice Blatchford in the Court below.

"'The patentee,' he says, 'must in every case give evidence tending to separate or apportion the defendants' profits and the patentee's damages between the patented feature and the unpatented features, and such evidence must be reliable and tangible, and not conjectural or speculative, or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.'"

Applying this rule of law to the case in hand, we contend that a reversal is necessary. Here is a patent with five claims. One of them (the first) is void, for the reason hereinabove advanced. Notwithstanding this fact, the plaintiff charged an infringement of **all** the claims of the patent and the jury awarded a lump sum as damages for infringement of **all** of said claims. A portion of those damages was awarded for infringement of the invalid claim, but there is nothing in the record whereby this Court can determine what proportion of those damages is attributable to the invalid claim. That can be done only by a new trial. Hence, a reversal is necessary, even if the four claims which were in the first re-issue should be valid. Under such circumstances, defendant in error was entitled only to nominal damages.

But further, we contend that said four claims are invalid in the second re-issue.

As we have already shown, Claim 1 is invalid. That being true, there is left remaining only the four claims which were found in the first re-issue. In other words, we then have a patent re-issued with identically the same claims and no material change in the specification.

It is a general rule of law that two valid patents for the same invention cannot be granted either

to the same or to a different party. In such event the latter one is void.

Suffolk Co. vs. *Hayden*, 3 Wall., 315.
James vs. *Campell*, 104 U. S., 356.
McCreary vs. *Penn. Canal Co.*, 141 U. S., 459.
Underwood vs. *Gerber*, 149 U. S., 224.
Miller vs. *Eagle M. Co.*, 151 U. S., 197.

The same rule must on reason apply to two re-issues of the same patent, because the Commissioner of Patents has no jurisdiction to grant a re-issue with the same claims as those of the original and with the same or substantially the same specification.

It is a question of jurisdiction. By the patent act the Commissioner is vested with jurisdiction to grant a re-issue only when the original is "inoperative or invalid by reason of a defective or insufficient specification, or by reason of a patentee claiming as his own invention or discovery more than he had a right to claim as new;" and even then, only when the error has arisen by inadvertence, accident or mistake, and without any fraudulent or deceptive intention. (R. S., § 4916.)

To grant a re-issue under any other circumstances would be beyond the jurisdiction of the Commissioner, and such re-issue would be void.

If this be the law, then the second re-issue of Robert's is void, because, being the same as the first re-issue, except that a new claim is added, and said new claim being void, said second re-issue becomes substantially identical with the first re-issue, both as to specification and claims. The specification of the first re-issue was not "defective" or "insufficient," nor had the patentee claimed as his own invention "more than he had a right to claim as new." In a word, the first re-issue was not "inoperative or invalid," for any reason specified in § 4916 of the revised statutes regulating re-issues. Therefore we submit that the second re-issue never had any legal existence and is absolutely void for want of jurisdiction in the Commissioner to grant it.

II.

THE RE-ISSUED PATENT SUED ON IS VOID BECAUSE NOT FOR THE SAME INVENTION AS THE ORIGINAL.

On this point the Court said to the jury: "I instruct you that this second re-issued patent is for the same invention as the original patent." (Record 192).

This was duly excepted to by exception No. 33 (Record 194).

We insist that the exception is good.

Without going into a detailed argument on

this point in this brief, but leaving the same to be explained in the oral argument, we submit this point upon the patents themselves as they appear in the record.

III.

THE COURT ERRED IN ITS CONSTRUCTION OF THE CLAIMS OF THE PATENT SUED ON.

It will be necessary to consider these claims *seriatim*, inasmuch as the jury found infringement of them all. If there was error *as to any one of them*, a reversal is necessary, because the damages were assessed in a lump sum and it cannot be ascertained what proportion thereof is attributable to any particular claim.

CLAIM 1.

"A portable combined, coal receiving, screening and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts, said apparatus being constructed and arranged substantially as and for the purpose above described."

This claim is void, beyond all peradventure, for three reasons, viz.:

1. *Unreasonable and unnecessary delay in applying for it.*

2. *Anticipation.*

3. *Want of invention.*

The first point has already been considered. The second is equally well taken. In the first

place, it is possibly void on account of vagueness and as not describing any mechanism. But we are not forced to rely on that. It was clearly anticipated in its very terms by the prior Sparks patents, No. 49,932 of 1865 (Record 97) and No. 96,991 of 1869 (*Id.* 99).

Those Sparks patents show a portable machine, consisting of an elevated hopper, regulating gate and screen, used for the same purpose as the Roberts device.

The specification of the first Sparks patent says:

> "The nature and object of my invention is to enable the coal-dealer to deliver the coal to his customers directly from the dock as perfectly screened as when it is hauled to and screened at the yard, by which means he is enabled to reduce the cost of his coal to himself and the price of the same to his customers."

The specification also shows that the machine is used in identically the same manner as that of Roberts, to wit: by moving from place to place on a wharf, receiving coal from a swinging tub or bucket from a vessel alongside and screening and delivering it into carts.

From the foregoing it will be seen that the Sparks device is a *portable combined coal receiving, screening and delivering apparatus arranged to receive the coal from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water-craft, and to screen it automatically and deliver it into carts.*

Of this there can be no manner of doubt. The patentee himself recognized this in applying for his patent, for by reference to the file-wrapper contents (Record, p. 90), we find that the claim was originally rejected on the Sparks patents. The patentee then made an insignificant amendment, and the claim was allowed, but, in allowing it, the Examiner said:

> "To prevent any misapprehension now or hereafter it is stated that the Examiner still regards the claim as met by the references, and, should Sparks apply for a re-issue, he might of right draw the same claim." (Record, 91).

The patentee accepted the patent with that proviso, which simply means that the combination is *shown*, though not *claimed*, in the Sparks patent. But that is anticipation. The Examiner said, in substance, "You are anticipated by Sparks, but as Sparks has not made a claim for the device, I will grant you the patent and leave you to fight it out with him hereafter."

It is to be observed that there is a difference in the details of construction between the Roberts and Sparks devices. Roberts has *an elongated hopper*, while Sparks has a *square one*. Roberts has a *reservoir O*, while Sparks has none, other than the hopper itself. In the Roberts machine the regulating gate is placed *at the lower end of the chute*, while in Sparks' it is placed at the *upper end*. But it is to be observed that Claim 1 of

Roberts is not confined to details of construction or specific mechanism. It is a broad, generic claim, calling broadly for the combination of *any form* of coal receiving, screening and delivering apparatus that is portable. That the Sparks device is *one form* of such device, admits not of a doubt. Hence, there is an anticipation. The Roberts Claim 1 is too broad. Sparks could have framed, and would have been entitled to the identical claim. The Patent Office has so decided and Roberts has assented to such ruling. He cannot now assume a different position. Where a patentee acquiesces in a ruling of the office, he is forever estopped from disputing it.

3. *But finally Claim* 1 *is void for want of invention.*

The prior English patent of Plimsoll, No. 2,193, of August 25, 1866 (Record, pp. 102–106) shows an apparatus for unloading coal from cars, screening it automatically and delivering it into carts. The bottom of the car has two hinged outward-moving boards forming a bottom. When these two boards open they form an elongated trough, receptacle or hopper, through which the coal flows. A chute, having a screen bottom, is placed underneath at an angle, and at the bottom of said chute is a regulating gate. Here we have all the mechanical elements of Roberts' device—

an elongated receptacle (call it whatever you may, trough, hopper or car) for receiving the coal, a chute and screen for delivering and screening, and a regulating gate for controlling the flow of the coal. In a word, we find a combined coal receiving, screening and delivering apparatus by which the coal is received, screened and delivered into carts at one operation.

The only difference is that it is not a *portable* apparatus. But portability is not patentable.

Heady vs. *Iron Works*, 127 U. S., 370.

Even if it were the prior Sparks device was *portable*. Combining the portable features of Sparks with the mechanical details of Plimsoll, produces the Roberts device. But that is not invention.

Furthermore Roberts testified that long prior to his invention there were all over the world "devices which consist of a receptacle into which coal goes, and beneath that a screen over which it passes to be screened, and under that receptacle and beneath that screen a gate into which the coal passes into vehicles." (Record, 25.)

That being the state of the art, all that Roberts did was to make one of the aforesaid old devices portable by mounting it on wheels so that it could be moved from place to place. But

"Merely putting rollers under an article so as to make it movable when, without the rollers, it would not be movable, does not involve the inventive faculty, and is not patentable."

Heady vs. *Iron Works*, 127 U. S., 370.

Atlantic Works vs. *Brady*, 107 U. S., 200.

Thompson vs. *Boisselier*, 114 U. S., 1.

Yale Lock Co. vs. *Greenleaf*, 117 U. S., 559.

Clark Co. vs. *Ferguson*, 119 U. S., 338.

Claim 2.

"*The receiving hopper BB', in combination with the reservoir O, with its screen or grating* side D, chute F, with its toothed gate *h*, and one or more independent screens I, all combined and arranged substantially as and for the purpose above described."

This claim may be dismissed from consideration because it was not infringed. One of its elements is "one or more independent screens I." This screen was not in our machine at all, nor is it so claimed by defendant in error. By glancing at the diagram of the alleged infringing machine offered in evidence by defendant in error opposite page 40 of Record, the proof of our assertion will be seen.

Claim 3.

"The metal blank or false bottom K, in combination with the receiving hopper BB' reservoir O, chute F, and gate *h*, substantially as and for the purposes above described."

"The metal blank or false bottom K" is a piece of metal of the same shape and dimensions as the superficial area of the screen bottom of the Roberts so-called "reservoir O." Its purpose is

to cover up the screen and thereby form a solid bottom for the reservoir. Whenever the patentee desired to screen the coal, during its passage from the hopper to the cart, he dispensed with the metal blank. Whenever he desires to deliver coal without screening, he inserts the metal blank or false bottom and covers up the screen. In other words, the device is a *removable bottom*, or, as correctly stated in the claim, "a false bottom."

The specification of the patent thus describes it:

> "When it is not desired to screen the article or substance to be unloaded, a false bottom or metal blank K, is placed upon the grating or inclined side D of the reservoir, so that the substance will be carried directly through the chute into the cart or wagon intended to convey it away."

This claim, therefore, covers the combination of *a removable bottom* with the other elements named, that is to say, a bottom which may be used or dispensed with at the will of the operator—the same to be used when no screening is desired, and to be dispensed with when screening is desired. The claim is for a machine having a *removable or false bottom*, as contra-distinguished from one having a *fixed, permanent, immovable* bottom. This is all so apparent that it surpasses our comprehension to understand how there could be any other construction of the claim. And yet the learned Judge of the Court below refused to give to the

jury the following instructions requested by the plaintiff in error, viz.:

"One of the elements of plaintiff's machine is a metal blank or false bottom, to be placed over the screen in reservoir O. If you find from the evidence that the defendant's machine did not contain a screen or metal blank or false bottom, then I instruct you that it did not and could not infringe upon the patent of the plaintiff or the machine therein described."

"If you find from the evidence that one of the machines constructed and used by the defendant did not contain a screen or metal blank or false bottom, then I instruct you that it did not infringe upon the plaintiff's patent or the machine therein described."

"You are instructed that by the false bottom or metal blank referred to in plaintiff's patent is meant something which is movable at pleasure and by which the screen or reservoir can be converted into a chute, and if you find from the evidence that in the machines used by the defendant there was a fixed and permanent bottom composed of boards and securely nailed, then I instruct you that the same did not constitute an infringement of plaintiff's patent or the machine therein described."

Record, p. 196.

Exceptions 41, 42 and 43.

On the contrary the Court instructed the jury as follows:

"In regard to the construction of plaintiff's patent, I instruct you that it is not limited to a device in which a screen is one of the elements—that is to say, it is not limited to a screening device, but it also includes a device for delivering coal from the hold of a vessel and passing it through a hopper and a reservoir having a solid bottom and a chute and a regulating gate. Sometimes it is used as both a screening and delivering device; at others it is used simply as a delivering device without screening. If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute which extends from the receiving hopper, instead of having a screen bottom, then I instruct you that such a device is also covered by the patent and is an infringement."

Record, 192.

This was duly excepted to. (See Exception 34, Record, p. 194.)

We submit that this construction given to Claim 3, and to the patent generally, was erroneous. It was construed to cover a machine having a *fixed permanent* bottom. The theory of the Court seemed to be that after the metal blank, or false bottom of the patent, was inserted, the machine was identical with one having a fixed permanent bottom, and therefore that the claim covered a machine with a fixed permanent bottom. Such construction does violence to the language of the claim. A fixed permanent bottom is not a removable false bottom, nor the equivalent thereof. Hence, a claim for one does not cover the other. The claim in question was for a machine having a removable or false bottom. The Court construed it to cover one having a fixed permanent bottom. That was error.

CLAIM 4.

"The combination of the hopper BB', for receiving the coal from a swinging bucket, the reservoir O, arranged to receive the coal as it passes from the hopper, with the chute F and gate *h* all constructed to operate substantially as and for the purpose set forth."

This claim is for a combination of the following elements:

1. The hopper BB'.
2. The reservoir O.
3. The chute F.
4. The gate *h*.

All constructed to operate substantially as and for the purpose set forth.

This claim is for the details of construction shown in the patent. Not only does the closing sentence of the claim indicate this, but the use of reference letters in designating the elements does likewise.

Weir vs. *Worden*, 125 U. S., 106–7.
Heady vs. *Iron Works*, 127 *Id.*, 375.
McCormick vs. *Aadman*, 58 Fed. Rep., 781.

Hence "the hopper BB'" is such a hopper as that shown in the drawings and described in the specification, and none other, to wit: "an "elongated" hopper formed of "two boards BB' at an obtuse angle to each other in the form of a trough," with "their lower ends separated so as to provide a space C between them," one of said boards forming an "extension to one side D, of a large reservoir O, which is located in the body of the frame below the hopper." The element in question does not cover a square hopper.

The second element, "reservoir O," is stated in the specification to be a "large reservoir O, which is located in the body of the frame below the hopper." And further: "This side D of the large reservoir slopes towards the opposite side of the frame and is constructed of parallel wires, secured at short distances apart so as to form a screen over

which the coal and other substances must pass in descending from the hopper to the reservoir, and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen lying in the second or large hopper. The reservoir is contracted towards its lower end. * * * By placing the reservoir O in its peculiar position and making it large, several advantages are obtained. Among others a large screening surface is obtained, etc., etc."

It is apparent from the foregoing that "the reservoir O," is one having a screen bottom, being of large size and placed in a particular position. We do not care specially for the last two qualifications, although the patent itself makes them essential, but we do insist that the screen bottom must be present. The drawing shows it and the specification describes it, laying particular stress thereon. Hence the claim cannot cover a reservoir having a *solid bottom*. The screen bottom is essential to the claim.

CLAIM 5.

"In combination with the enlongated hopper, the screen D, reservoir O, and chute F with its gate *h*, the combination being substantially as is herein set forth."

One of the elements of this claim is "an elongated hopper."

The specification of the patent says (Record 11):

"At one side of the top of this frame I secure two boards, BB', at an obtuse angle to each other *in the form of a trough*, but leave their lower ends separated so as to provide a space C between them for the purpose hereinafter described. These boards form what I call the hopper."

And further on (Record 12) it is said:

"The hopper BB' is as long as the machine and is made wide. * * * The *construction* and location of this hopper BB' make it a success in receiving the contents of the bucket by which the coal is hoisted from the hold of the vessel, a result which I believe was never before accomplished by any hopper."

In other claims it is called simply "a hopper." In Claim 5 it is called "the *elongated* hopper."

And in a communication to the patent office, under date of June 29, 1874, appearing in the file wrapper, the patentee says:

"The specially important features of this apparatus are, first, the *elongated* hopper which receives the coal from a bucket hoisted by a block and tackle at the end of a yard arm. It is obvious that the bucket when thus raised, will swing about more or less, such swinging being increased by the rolling or swaying of the vessel so that with a *square* hopper such as is shown in Sparks' screen it will be difficult to empty the contents of the bucket into the hopper. But by using the *elongated* hopper, such as Roberts shows, this difficulty is avoided. * * * * * * * * * * * * Sparks device of 1869 is but an improvement upon his former device patented September 12, 1865. In both of them he shows merely a *square* hopper, etc., etc." (Record 59-60).

From the foregoing it is clearly apparent that Claim 5 of the Roberts patent includes as an element a hopper of *an elongated form* as distinguished from one of *a square form*. Now the hopper in the machine of the plaintiff in error is not an *elongated* hopper. It is a *square* one. According to the patentee's admissions and argu-

ments in the Patent Office, and according to the wording of his claim and specification, a square hopper is not the equivalent of his elongated hopper. Hence there was no infringement of Claim 5.

IV.

THE COURT ERRED IN ITS CHARGE ON THE QUESTION OF INFRINGEMENT.

On this subject the charge to the jury was meager. In fact there is in the charge but a single sentence concerning infringement. It reads as follows:

> "If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute which extends from the receiving hopper, then I instruct you that such a device is also covered by the patent and is an infringement." (Record, 192.)

It will be observed that this instruction is aimed at Claim 3 alone. Yet it is all that was said on the question of infringement.

The complaint in the case charged infringement generally of all the claims of the patent. That is to say, it charged infringement generally of the patent, and that necessarily includes all the claims. The testimony does not show that the plaintiff withdrew any claim from such charge of infringement. The verdict of the jury was a general verdict for infringement of the patent generally, being commensurate with the charge of

infringement. Hence we see that the plaintiff charged infringement of *all the claims* and the jury found infringement of *all the claims* of the patent, assessing the damages in an aggregate sum therefor.

Clearly such verdict is erroneous because some of the claims were not infringed. Claim 1 is void for the reasons hereinabove urged, and we do not believe that counsel for defendant in error will dispute the point. The matter is so clearly apparent that it admits not of argument. Hence it was error to find infringement of Claim 1.

Nor was there any infringement of Claim 2, because the combination included as an element "one or more independent screens I," which element was not found in our machine. Counsel for defendant in error will not claim that said element is in our machine, and, even if he did, a mere glance at the drawings will show that it is not there. Nor is there any equivalent of it in our machine, for we have entirely dispensed with its function. Hence it was error for the jury to find infringement of Claim 2.

Claim 3 was not infringed because one of its elements was "the metal blank or false bottom K," which was not found in our machine. On the contrary we used a fixed, permanent bottom, which was a part of the organic structure of the machine.

Claim 5 was not infringed, because one of its elements was "the elongated hopper," which was not used by plaintiff in error. We have already shown that the elongated form was an essential feature of the hopper of Claim 5. It is undisputed that the plaintiff in error did not use an *elongated* form, but a *square* form of hopper. Hence there was no infringement of Claim 5.

This leaves only Claim 4 remaining. We contend that there was no infringement of that claim for the following reasons:

1. *The first element is "the hopper B B'." We have already seen that said hopper is of elongated form, made of two boards placed at an obtuse angle to each other so as to form a trough. No such hopper is found in the machine of plaintiff in error.*

2. *The second element of the machine is "the reservoir O, arranged to receive the coal as it passes from the hopper," and no such reservoir is found in our machine.*

We have already shown what is meant in the patent by "the reservoir O". The specification says it is "a large reservoir O, which is located in the body of the frame below the hopper. This side D of the large reservoir slopes towards the opposite side of the frame, and is constructed of parallel wires, secured at short distances apart so as to form a screen, over which the coal or other

substance must pass in descending from the hopper to the reservoir, and through which the small particles up to a certain size will fall, leaving the larger pieces, which cannot pass through the screen, lying in the second or large hopper. The reservoir is contracted towards its lower end. * * By placing the reservor O in its peculiar position and making it large, several advantages are obtained. Among others a large screening surface is obtained * * * the reservoir O is large enough to serve as a store-room, so that in case of temporary delay in the vehicle carrying the coal to the yards, the work of unloading the ship or other vessel can proceed without the necessity of piling the coal upon the wharf.

Now in our machine there is no "reservoir O." Our machine has a large receiving hopper and a plain simple chute extending therefrom. The Roberts device has a hopper, a reservoir with a screen bottom and a chute. Ours has a hopper and a chute. It has no reservoir, no screen bottom.

Hence there was no infringement of Claim 4, and the Court should have instructed the jury to find a verdict for defendant as requested (Record 180). It was error to refuse that request.

But even if there was an infringement of Claims 3 and 4, still the verdict is erroneous, because the jury found infringement of all the

claims, whereas there was clearly no infringement of claims 1, 2, and 5, or either of them. In either event the judgment should be reversed.

V.

The Damages Awarded are Excessive.

As we have already shown, the plaintiff below charged infringement of all the claims of the patent. The jury found in accordance with such charge and assessed the damages in a lump sum for infringement of all the claims. But it is beyond all question that the plaintiff in error had not infringed all the claims of the patent. Certainly there was no infringement of Claim 2, because of the omission of the element designated as "one or more independent screens I"; nor was there any infringement of Claim 5, because of the omission of a hopper having *an elongated form*. We contend further that Claim 1 is void, and hence there could be no infringement of it. Thus it is made manifest that of the five claims of the patent three at least were not infringed. We contend that neither of the other two was infringed, but admitting solely for argument's sake that the remaining two claims were infringed, still the verdict is erroneous.

1. *Because it was awarded as a lump sum for a supposed infringement of all the five claims of*

the patent and not merely for two or three or any less number than five.

Clearly such an award of damages is erroneous. The sum of $8,830.90 was fixed on by the jury as the proper amount to be awarded for infringement of *all* the claims of the patent. That amount was the measure of damages for infringement of all the claims. But it being now made manifest that some of said claims were not infringed, it follows that the amount of the verdict is too large.

Nor is there any way of modifying it by deducting the excessive amount, because there is no possible means for segregating the damages among the different claims. If the Court could figure out what proportion of the aggregate amount was awarded for each claim, then a correct result might be reached, but that is impossible. There is no *data* on which to make the calculation. That a portion of the aggregate sum awarded was for a supposed infringement of the uninfringed claims cannot be denied, and if that portion cannot be determined, then the judgment must be reversed and a new trial ordered.

It is more just to grant a new trial and compel the defendant in error to limit his damages to the infringed claims, than to mulct the plaintiff in error for an infringement that was never committed.

2. *But further the measure of damages adopted was erroneous in any event.*

It appeared that the patentee had no established royalty (Record 22), but manufactured the machines for his own use, and used them in screening and delivering coal for others at a stipulated price for such work. Hence it was argued that the proper measure of damages was the profits which the defendant in error would have realized if the plaintiff in error had employed and paid the defendant in error to deliver its coal. The amount of coal delivered by plaintiff in error was 176,618 tons (Record 193.) The jury decided that the defendant in error would have made as profits five cents a ton, if it had delivered that coal. Accordingly that was adopted as the measure of damages, and the defendant in error was allowed five cents a ton on 176,618 tons, amounting in the aggregate to $8,830.90.

This result was reached through the following instruction given by the Court, viz.:

"If you find in favor of the plaintiff in this case, then on the question of damages you will first determine the number of tons of coal delivered from vessels and passed through the machines of defendant and loaded into carts, irrespective of whether that coal was screened or not in its passage through the machine. Then you will determine what were the usual rates charged by the plaintiff to the public generally for so delivering coal through its patented machine. Then you will determine the expenses incurred by plaintiff in so delivering coal through its machines, if there is any evidence as to what those expenses were. Having determined these points, you will multiply the number of tons of coal delivered by defendant

through its machines by the usual rate per ton charged by plaintiff to others and deduct from the result reached the expense or cost which plaintiff would have been put to in delivering that amount of coal through its machine, which expense and cost will be that usually incurred by plaintiff in so delivering coal through its machine, and the result thus reached will be the measure of plaintiff's damage.

This instruction is defective in several particulars.

The rule here sought to be applied by the Court is very clearly laid down by Mr. Walker, at section 563 of his work on patents, in the following language:

"Where no established royalty is applicable as a measure of the damages caused by a particular infringement, those damages may sometimes be ascertained by the second method; that is, by finding what the plaintiff would have derived from his monopoly if the defendant had not interfered, but which he failed to realize because of that interference with his rights. Where the owner of a patent is able to supply the whole demand for the thing it covers or produces, and where the whole demand would go to him if not diverted by some infringer, it is clear that the injury caused by a particular infringer can be ascertained by finding what pecuniary advantage the owner of the patent would have derived if he had supplied that portion of the demand which was supplied by that infringer. The two conditions of this rule are prerequisites of its applicability. The highest authority has announced that: 'What a patentee would have made if the infringer had not interfered with his rights is a question of fact, and not a judgment of law.' In order to show that a patentee would in fact have made a particular profit, if an infringer had not forestalled his sales, it is necessary to show that he would, but for that infringer, have made those sales; and to that end it is necessary to show that he could have supplied the articles wanted, and that the persons wanting those articles would have bought them of him had no infringer interfered. But these points may be sufficiently established without being demonstrated, because demonstration would generally be impossible, and because every reasonable doubt relevant thereto is to be resolved in favor of the plaintiff. Where these facts are proved, the damages of the patentee will consist of the profits which he would have derived from the sales made by the infringer, if the patentee had made those sales,

supplemented by the amount of whatever reduction of prices the patentee was compelled, by the defendant's competing infringement, to make even upon the goods which he did sell."

On comparing the instruction with the rule thus laid down and which the Court attempted to follow, we find it defective in the following particulars:

a. *The instruction assumes that the defendant in error could have delivered the coal which was delivered by the plaintiff in error.*

b. *It likewise assumes that the plaintiff in error would have employed the defendant in error to deliver the coal if the infringement had not occurred.*

c. *It authorizes the jury to fix the damages for the coal irrespective of whether it was screened or not.*

The rule of law quoted says:

"In order to show that the patentee would in fact have made a particular profit, if an infringer had not forestalled his sales, it is necessary to show that he WOULD, but for that infringer, HAVE MADE THOSE SALES; and to that end it is necessary to show that HE COULD HAVE SUPPLIED THE ARTICLES WANTED AND THAT THE PERSONS WANTING THOSE ARTICLES WOULD HAVE BOUGHT THEM OF HIM HAD NO INFRINGER INTERFERED.

Before the defendant in error could have recovered for lost profits, it was necessary to show that profits were lost. To show that, the first requisite was a showing that the defendant in error *could have done the work*, that is to say, had the necessary appliances, machines, men, and means for doing the work. *Non constat* that the defend-

ant in error was utterly unable to do the work in question. Said work might have been of such a character either as to time, place, or circumstance, or character of coal, that the defendant in error could not have done it. This might have resulted from a want of the necessary number of machines, from a want of money necessary to hire men, etc., from the fact that its machines were, at the time in question, employed in other work, or from a variety of causes.

It is not necessary, however, to speculate on the matter, because the defendant in error was not entitled to measure its damages in the manner adopted, unless it could have done the work from which the profits would have been realized. Having adopted that measure of damages, it was bound by all of the conditions and qualifications of the rule. The failure of the Court to instruct the jury as to the qualification in question, and the giving of the instruction without the qualification, was error.

The second objection urged *supra* was equally fatal. Certainly a person could lose no profits on a piece of work if the person having the work done would not have employed him to do it. It was necessary for the defendant in error to show that it *would have done the work in question* if no infringement had occurred. Who can say, that,

if the plaintiff in error had not done the work itself, it would have employed the defendant in error to do it with the patented machine or at all?

To recapitulate, it was necessary for defendant in error to have shown, 1st, that it *could* have done the work, and 2d, that it *would* have done the work but for the infringement. Otherwise it is not apparent that it lost any profits. Hence the instruction was error. The Court told the jury to figure out what profits the defendant in error would have made on the work in question and to adopt that sum as the measure of damages. The Court should have added to the instruction the two qualifications above stated. As the instruction stands it is error.

The standard case of *Seymour* vs. *McCormick* (16 How. 480) is decisive of the question at issue. There the jury awarded as damages the profits which it was supposed the patentee would have made if the persons who bought from the infringer had bought from the patentee—a case of lost profits. In arriving at the verdict the jury were told to ascertain the number of infringing machines sold by the defendant, then to ascertain what profits the patentee usually made on his patented machines, by deducting from the selling price the cost of manufacture and sale, and to award the plaintiff a sum equal to the profits

which he would have made on the sale of a number of his machines equal to the number of infringing machines sold. And, as an aid to the jury, the Court said:

"The general rule is that the plaintiff, if he has made out his right to recover, is entitled to the actual damages he has sustained by reason of the infringement, and those damages may be determined by ascertaining the profits which, in judgment of law he would have made, provided the defendants had not interfered with his rights. That view proceeds upon the principle that, if the defendants had not interfered with the patentee, all persons who bought the defendant's machines would necessarily have been obliged to go to the patentee and purchase his machines. That is the principle upon which the profits that the patentee might have made out of the machines thus unlawfully constructed, present a ground that may aid the jury in arriving at the damages which the patentee has sustained."

The plaintiff in error complained of the verdict.

"1. Because the jury were instructed that it is a legal presumption that if defendant had not made and sold machines, all persons who bought the defendant's machines would necessarily have been compelled to go to the patentee and purchase his machines."

This Court held such instruction to be error, and Mr. Justice Grier said, in delivering the opinion:

"Actual damages must be actually proved, and cannot be assumed as a legal inference from any facts which amount not to actual proof of the fact. What a patentee would have made, if the infringer had not interfered with his rights, is a question of fact and not a judgment of law. The question is not what speculatively he may have lost, but what actually he did lose. It is not a judgment of law, or necessary legal inference, that if all the manufacturers of steam engines and locomotives who have built and sold engines with a patented cut-off or steam whistle, had not made such engines, that therefore all the purchasers of engines would have employed the patentee of the cut-off or whistle; and that, consequently, such patentee is entitled to all the profits made in the manufacture of such

steam engines by those who may have used his improvement without his license. Such a rule of damages would be better entitled to the epithet of *speculative, imaginary* or *fanciful* than that of *actual.*"

And the syllabus is as follows:

"It was also erroneous to lay down as a rule for the measure of damages, the amount of profits which the patentee would have made if he had constructed and sold each of the machines which the defendants constructed and sold. There was no evidence to show that the patentee could have constructed and sold any more than he actually did."

The rule laid down in this case has never been changed. It was followed by this Court in *Corporation of N. Y.* vs. *Ransome*, 23 How., 489, *Packet Co.* vs. *Sickles*, 19 Wall., 617, *Root* vs. *The Railway Co.*, 105 U. S., 195; and it has been cited with approval in *Mowry* vs. *Whitney*, 14 Wall., 560, *Birdsall* vs. *Coolidge*, 3 Otto, 70, *Rude* vs. *Wescott*, 130 U. S., 165, and many others.

Buck vs. *Anheuser* (14 Blatch. 19.; s. c., 2 B. & A., 452) was a case identical in principle with the one at bar. There the Master ascertained first the number of infringing devices sold by the defendant. He then figured out the net profits which the patentee usually made on each of his patented devices. "This amount," says the Court, "multiplied by the number of watches which the defendants sold produces the sum which the Master has found as damages."

Such computation of damages was held erroneous because there was no proof that the patentee *could* or *would* have supplied the de-

mand which was supplied by the infringer, and the Court said the award of damages was erroneous because :

"It was not made to appear that the plaintiff *could* have sold his watches to the persons who purchased from the defendants * * * and it cannot be known that those who bought the infringing article would have bought the plaintiff's watches under any circumstances (*Smith* vs. *Prior*, 2 Saw., 461; *Carter* vs. *Baker*, 1 *Id.*, 512). The inquiries suggested by those cases as pertinent to the assessment of a plaintiffs damages, do not warrant the adoption of the result stated in the report. The damages in such a case must be confined to the direct and immediate consequences of the infringement, and do not embrace those which are both remote and conjectural."

The rule was also well stated by Judge Wallace in *Hall* vs. *Stern*, 20 Fed. Rep., 789, as follows :

"The question is not what speculatively the complainants may have lost, but what they actually did lose. If the defendants had not sold the patented mirrors to their customers, it does not follow that the complainants would have sold them to the same customers or to retail merchants."

In view of the rule of law laid down by the cases cited, it would be idle to deny that the instruction in question is erroneous. That instruction merely told the jury to find out what net profit per ton the patentee usually made in delivering coal through his patented machine, and then to multiply that by the number of tons delivered through the infringing machines, saying—"and the result thus reached will be the measure of plaintiff's damage." We submit that such instruction was a palpable error.

3. *There is still another error in the instruction in that the damages were not limited to the profits due to the patented features of the machine, but included profits due to the unpatented features as well as the general profits of the business of delivering coal.*

The rule that damages must be limited to the patented parts and not include the unpatented parts of a machine is too well settled for argument.

Seymour vs. *McCormick*, 16 How., 480.
Manufacturing Co. vs. *Cowing*, 105 U. S., 253.
Mowry vs. *Whitney*, 14 Wall., 620.
Littlefield vs. *Perry*, 21 Wall., 228.

It is equally well settled that the general profits of the business, or, as they are usually styled, "shop profits," are not recoverable and must be subtracted from the aggregate profits realized. The necessity of this rule is made apparent in this case by reason of the fact that the defendant in error charged the same prices and realized the same profits from their machines after the patent had expired as they did before its expiration.

4. *Said instruction is erroneous, because no distinction was made between the delivery of coal without screening and its delivery with screening.*

The instruction says:

"You will first determine the number of tons of coal delivered from vessels and passed through the machines of defendant and loaded into carts, *irrespective of whether that coal was screened or not, in its passage through the machine, etc.*"

It appears that of the amount of coal delivered by plaintiff in error from ships into carts, only 7,743 tons were screened, while 168,875 were unscreened. In other words, while using a machine having a screen bottom, the plaintiff in error delivered 7,743 tons, and while using a machine having a fixed, permanent, solid wooden bottom (without any screen), delivered 168,875 tons. Now, certainly, Claims 1, 2 and 3 of the patent, and possibly all the claims of the patent, include a screen bottom, and would not be infringed when a screen is not used. The testimony shows that the defendant in error calculated its profits on the use of the entire machine, thereby necessarily attributing a portion of those profits to the screening feature. As the plaintiff in error had not used said screening feature in delivering the largest portion of its coal, clearly no charge can be made in that regard, and the only coal for which a charge could be made, so far as any screening device is concerned, would be the small amount which was actually screened, to wit: 7,743 tons. And yet the jury was told it made no difference whether a screen was used or not, which amounted, in substance, to saying that a screen was not an

essential element of any of the claims of the patent. Under that instruction the jury rendered a verdict of $8,830.90 for all the coal delivered by plaintiff in error, the unscreened as well as the screened, at the rate of five cents per ton. We submit that this was error.

5. *Finally, there was error in refusing to instruct the jury as requested by plaintiff in error.*

The plaintiff in error requested the Court to instruct the jury as follows:

"The president of the plaintiff has testified that the charge for receiving, screening and delivering coal with his machine was ten cents a ton. If from the testimony you are unable to determine how much it cost the plaintiff to receive, screen and deliver such coal, then you are instructed that the necessary elements to enable you to determine how much damage has been suffered by the plaintiff has not been shown you, and under those circumstances should you find an infringement your verdict can only be for nominal damages." (Record, 196.)

Certainly this instruction was proper and should have been given. Defendant in error elected to measure his damages by *lost profits*. It was therefore neccesary to prove those profits. In proving them the expense of doing the work must be deducted from the gross price received. The difference would be the net profits and the measure of damages (providing the other requirements of the rule had been complied with). This merely amounts to saying that the profits of a sale are calculated by subtracting the cost from the selling price.

Now the evidence in this case as to the cost incurred by defendant in error in delivering coal was vague, dim and shadowy. If it was so vague, dim and shadowy that the said cost could not be ascertained therefrom, then the verdict should not have been for more than nominal damages, because it was incumbent on defendant in error to show by clear and satisfactory evidence what that cost was. Hence the appropriateness of the instruction requested. Why the Court refused it is not apparent. We submit that the refusal was error of the gravest kind, and that we are clearly entitled to a reversal of the onerous and oppressive judgment rendered against us in which the damages appear to have been guessed at and are purely speculative.

Respectfully submitted,

M. M. ESTEE,

For Plaintiff in Error.

Office Supreme Court U. S.
FILED.
DEC 27 1894
JAMES H. McKENNEY,
CLERK.

SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1894.

NO. 200.

THE BLACK DIAMOND COAL MINING COMPANY,

Plaintiff in Error,

vs.

THE EXCELSIOR COAL COMPANY,

Defendant in Error.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE DISTRICT OF CALIFORNIA.

Brief for Defendant in Error.

CHARLES R. MILLER,
For Defendant in Error.

JOHN L. BOONE,
Of Counsel.

IN THE

Supreme Court

OF THE UNITED STATES OF AMERICA.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL MINING COMPANY,
Plaintiff in Error.

vs.

THE EXCELSIOR COAL COMPANY,
Defendant in Error.

BRIEF FOR DEFENDANT IN ERROR.

STATEMENT OF THE CASE.

The patent sued on in this case was a second reissue of original Letters Patent No. 140,077, which was issued to Martin R. Roberts on the 17th day of June, 1873, for "Improvement in Coal Screens and Chutes." It consists of a receiving hopper, a reservoir, a screen and a chute, so arranged in a portable machine that coal can be continuously

dumped into the hopper from a swinging tub or bucket, while at the same time it is delivering screened coal into carts from the chute.

The machine or apparatus is intended more especially for unloading coal from ships at a wharf, and its object is to receive the coal from the swinging-tub or bucket, screen it as it passes through the machine and discharge the screened coal into carts from its chute; *the several operations being simultaneous and continuous.*

Special conditions which existed in the coal trade on the Pacific Coast was the incentive which called this apparatus into existence. The Pacific Coast is supplied almost exclusively with its coal for fuel purposes by transportation in vessels and it is principally landed on the wharves in San Francisco from ships which transport it from long distances, some through tropic climates (Australia and English coal, for instance) during which transit it becomes slacked and when it arrives in San Francisco it is what is called dirty coal. The other source of its coal is from Puget Sound in the State of Washington, and Coos Bay in Oregon. All of these latter coals are of the soft bituminous kind, which not only slacks readily, but is broken easily by handling.

Prior to 1873 all coals landed in San Francisco and other Pacific Coast ports was dumped directly upon the wharf when taken from the ship. The vessel which carried the coal was moored against the wharf and the coal was hoisted from the hold in swinging tubs or buckets, which, when filled and hoisted, were swung out over the wharf and turned upside down so as to dump the coal in a pile on the wharf, which sometimes reached fifteen and twenty feet in height. This coal was then sold to retail dealers, who shoveled it into carts and hauled it to their respective yards where it was screened in order to separate the fine coal from the larger

or merchantable coal, which was required for retail trade. This left every coal yard with a pile of screenings or fine coal, which was hard to dispose of until a quantity large enough to pay for hauling away was accumulated, and even then it was sold at a very low price. During the process of dumping the coal from the swinging bucket upon the wharf, or pile of coal upon the wharf, much of it was broken by the impact of the fall, and the frequent handling was wasteful and damaging to the coal. Again these coal piles on the wharves were such a menace to the wharves themselves; often crushing and destroying them, that laws and ordinances were passed prohibiting the depositing of coal thereon above a certain quantity or weight.

The apparatus covered by this patent in suit was the first apparatus ever devised to remedy the evil of this traffic. In fact it was the pioneer in the art of providing the new mode of handling coal, hereinafter stated, and which now exists all over the Pacific Coast.

The apparatus, we will here state, is not a simple hopper, coal screen and chute. It is an organized apparatus which permits a simultaneous and continuous movement of the coal. In other words, coal can be continuously dumped into the hopper from the swinging tub, while carts are filling and taking away screened coal from the chutes, and *vice versa*. Carts can be taking away coal from the chutes while coal is being dumped into the hopper of the machine from the swinging tub. The especial feature of the apparatus which permits this to be done, is the interposition of a reservoir between the receiving hopper and the delivery chute. This reservoir may be large or small, but there must be a reservoir, of some kind, and it was the employment of this reservoir in the coal receiving, screening and delivering apparatus

that enabled it to accomplish the new operation, mode, result and effect.

If the machine were a simple coal receiving hopper, screen and chute, such as had been in former use, the carts could not be filled while coal was being dumped into the receiving hopper. A single gate interposed between the receiving hopper and delivery chute, as in Spark's machine, (Defendant's Exhibit C, p. 99, Transcript,) would necessitate that it should be closed when a tubfull of coal was dumped into the receiving hopper, otherwise its impact would drive the coal already in the receiving hopper into the opening and choke and wedge it up, and even when the coal was not being dumped into the upper hopper it would be impossible to close the single gate so as to control the flow of the coal, because it would be choked with large lumps and pieces of coal that would prevent the gate from closing and thereby let the whole charge of coal in the hopper run out through the chute. Witness Morrison at folio 310, p. 176 Transcript, testifies to the result of several attempts to load coal from a hopper through a single gate, or rather without a reservoir. In every instance all the coal in the hopper ran out on the wharf, and in one case it covered up the mule, man and cart.

The reservoir enables the driver of the cart, or person who manipulates the gates, to regulate and control the flow of the coal into the cart, so that the instant the cart is full the flow of coal can be stopped. It provides a small, substorage place in and forming a part of the chute, which contains a quantity of coal in an apartment or compartment separate from the receiving hopper into which the coal is dumped from the swinging tub, and the coal flows from this reservoir into the cart, and is not influenced by the weight

or impact of the coal which is being dumped into the receiving hopper.

As above stated, the advent of this machine entirely changed the method of handling coals on the Pacific Coast. It went immediately into use and is now the only way that coals are transferred from vessels.

The defendant is a coal mining and shipping corporation. It used plaintiff's machine under a royalty for about five years after it was first introduced. (Cornwall's testimony, folio 248, p. 141, Transcript.) It then ceased to pay royalty and built machines of its own. (Exhibit drawing between pp. 40-41, Transcript), which are charged to be an infringement of the Letters Patent sued on.

ALLEGED ERRORS.

According to the record Appellants have assigned thirty-nine alleged errors, on which they rely to reverse the judgment in this case. Twenty of these alleged errors relate to the rulings of the Court at the trial while the other nineteen relate to the charge of the Court to the jury. We are satisfied that the Attorneys for Appellant will not in their brief insist upon all of these specifications, but we cannot tell until we see their brief on which specifications they will finally rely. In the absence of this information we are compelled to review them all. The twenty rulings of the Court made at the trial we will review separately, and then discuss the law applicable to the case with reference to the other nineteen specifications as the most logical method of presenting the case in brief.

The first error assigned, signed by Appellant is,

FIRST SPECIFICATION.

> "The Court erred in admitting in evidence reissued "Letters patent No. 7,341, dated October 10th, 1876, "which was the second reissued Letters Patent issued "to Martin R. Roberts, at the above date, because in "order to lay a foundation for the introduction of that "patent, plaintiff should first present and introduce in "evidence the original and the first reissued Letters "Patent."

REPLY—The suit is not based upon either the original or first reissue of the patent. These two issues had been surrendered and cancelled, and the second reissue was the only patent in existence and the only patent charged in the complaint to have been infringed. The only object that could be effected by introducing either the original or first reissued patent would be to attack the second reissue sued on as not being for the same invention as that described in the original or first reissue patent, or for the purpose of showing that the second reissue contained new matter not contained in the original, and this was a matter for the defense to produce. The defense cannot compel the plaintiff to introduce evidence, the only object of which was to attack the validity of its patent.

It was the privilege of the defense to introduce these former issues, and it did so introduce them (Defendant's Exhibit B, and Defendant's Exhibit C). No injury was therefore done to defendant even if this ruling of the Court was error. The reissued patent itself made a prima facie case for the plaintiff.

Clark vs. Wooster, 119 U. S., 322.

SECOND SPECIFICATION.

"The Court erred in admitting in evidence against "defendant's objection the model of plaintiff's second "reissued Letters Patent."

(1). "Because it was not a correct model of the "patented device sued on in this action, and

(2.) "Because it did not represent correctly the "combination of devices forming the patent upon "which this action is brought."

REPLY—It appears from the proceedings and testimony (folio 26, pp. 15-16 Transcript) that the only difference between the device represented in the patent and the model in question was, that the model had no supplementary screen underneath the chute. In other respects it was a fair representation of the patented device.

The second claim of the patent is the only claim that embodies this independent screen, and no infringement upon that claim was asserted. Besides this, the patent and the drawings attached thereto were in evidence. The model did correctly represent the combination of devices embodied in all the claims except the second.

We hold therefore, that the ruling of the Court was proper.

THIRD SPECIFICATION.

"The Court erred in admitting in evidence (against "defendant's objection) evidence of the portability of "plaintiff's patented device, on the ground that the "element of portability is not patentable."

REPLY—Whether the element of portability is patentable or not, (and we admit that it is not) plaintiff was entitled to show the function and characteristic features of his machine. The portability was one of the capabilities of the machine that made it useful for the purpose it was intended to serve. A knowledge of the construction of the machine, its uses and

capabilities was essential for the jury in order that it should understand what the patentee claimed, and the fact of portability was a part of this general knowledge of the case. No claim was made by the plaintiff that the element of portability was patentable, and no evidence was admitted by the Court that had a bearing on such a proposition.

FOURTH SPECIFICATION.

"The Court erred in refusing to permit the defend-
"ant to cross examine Martin R. Roberts, the patentee,
"in relation to his use of the Spark's machine.

(1). "Because it appeared that the Excelsior Coal
"Company, the plaintiff in this action, was the owner
"of said Sparks patent during all the time in which
"alleged infringement occurred."

(2). "Because it appeared further that the said
"Sparks machine was a portable machine and used for
"the purpose of receiving coal from the hold of vessels
"and delivering to carts or other vehicles."

(3). "And because it was responsive to the testi-
"mony given by said M. R. Roberts in his direct ex-
"examination and was proper and legitimate cross-
"examination."

REPLY—The last ground of objection is the only one worthy of notice, because the ruling of the Court was made on the ground that the matter was not cross-examination. We have examined the record carefully and we find no place where the witness on direct examination had given any testimony regarding the Sparks machine as a foundation for a cross-examination, and hence the ruling of the Court was correct. But even if the Court had erred, it appears from the record, (p. 37) that counsel for the defendant did afterwards cross-examine the witness fully regarding the Sparks machine, consequently the defense could not have been injured if the Court had erred. But the record bears us out that the Court did not err.

FIFTH SPECIFICATION.

"The Court erred in sustaining the objections made "by plaintiff to the question on cross-examination pro- "pounded by defendant to Martin R. Roberts, the "patentee, as follows:

"Captain Roberts, the Letters Patent which are "offered here in evidence by plaintiff, and upon which "this suit is brought, appears to have been a second "reissue. There was issued to you then another "patent covering this invention, or some portion of "it, was there not?"

REPLY—At this point we shall not enter into a discussion of the proposition involved in this question because the ground on which the Court made its ruling was, that *it was not proper cross-examination. That it was part of the defense.* The ruling of the Court did not debar or prevent the defense from going into the question at the proper time and in the proper way, but it simply conformed to a regular and orderly procedure by not permitting a defendant to put in its defense under cover of cross-examination of plaintiff's witness in the plaintiff's case, when no proper foundation existed for the cross-examination.

SIXTH SPECIFICATION.

"The Court erred (against defendant's objections) "in permitting the witness Roberts to testify as to "what was an average day's work of his machine."

REPLY—The ground of the objection made by defendant's attorney was that the question related to a matter "not responsive to any issue here." The question of damages—how much the plaintiff had been damaged—was the material issue in the case. It was the burden and duty of the plaintiff to prove how much he had been damaged. The daily capacity of the machine depended on circumstances of place,

position and the way it was used. The only way, therefore, to arrive at a proper estimate was to prove an average day's work, consequently the testimony was properly admitted.

SEVENTH SPECIFICATION.

> "The Court erred in refusing to permit Mr. Corn-
> "wall, a witness for the plaintiff, and President of the
> "defendant company, to describe on cross-examination
> "the machine used by the defendant at its works,
> "which he desired to have his carpenter reproduce in
> "a portable shape; and also how long a time this
> "machine had been at the Black Diamond Mine."

REPLY.—The exception on which this specification is based, was founded on another attempt of the attorney for the defendant to draw out matters in defense from plaintiff's witness where no foundation existed for the cross-examination. The witness, Cornwall, was the President and representative of the defendant corporation. Plaintiff put him on the stand simply to prove the infringement and for no other purpose. The witness testified that when he made his infringing machines, he sent his carpenter to the Black Diamond Mine with instructions to reproduce the chutes, screens and bunkers, which were at that place in portable shape. There is no testimony to show that the carpenter ever did do as he was instructed. No attempt was made in the direct examination to show the construction of the Black Diamond chutes, screens and bunkers. The question on page 39 of the Record which reads as follows: "Has any change been made in their construction since they were first built?" does not refer to the Black Diamond machines, but to the alleged infringing machines which the witness would have us believe were the portable reproduction of those Black Diamond machines; in other words the machines used by the defend-

ant on the wharves in San Francisco. The attorney for defendant, however, commenced to cross-examine the witness regarding the construction of the Black Diamond machines themselves, which was not proper cross-examination because he was asked nothing about this construction in the direct examination. The Court so held, and its ruling was undoubtedly correct.

EIGHTH SPECIFICATION.

> "The Court erred in refusing to permit the defend-
> "ant to introduce in evidence the first Sparks patent
> "on cross-examination of Martin R. Roberts, he having
> "previously testified in his examination-in-chief as to
> "the character of the Sparks invention and that it was
> "not a useful or practical machine."

REPLY. This was another attempt of the defense to get defensive matter in evidence under cloak of the plaintiff's case. The statement contained in the specification that the witness, Martin R. Roberts, had previously testified in his examination-in-chief as to the character of the Sparks invention does not appear to be the fact. By an inspection of the record (folio 61, p. 37) it will be found that the testimony of the witness regarding that machine (and we find no other) was drawn out on cross-examination by the attorney for defendant. The ground on which the Court made its ruling was that it was not cross-examination, and the record sustains the Court. Besides this, the Sparks patent was subsequently introduced in evidence (see p. 99, Record) by the defendant.

NINTH SPECIFICATION.

> "The Court erred, after the closing of the testimony
> "on behalf of plaintiff, and upon motion of plaintiff's
> "counsel, in refusing to instruct the jury to bring in
> "a verdict for the defendant."

REPLY. The record does not show on what ground the defendant expected an instruction for a verdict on plaintiff's testimony. We shall not therefore discuss this alleged error further than to say that the evidence warranted the Court in refusing to so instruct. An original patent was in evidence. Plaintiff's title was admitted (folio 73, p. 43, Record,) and infringement by defendant had been proved. This was sufficient to make out plaintiff's case.

TENTH SPECIFICATION.

> "The Court erred as follows:
>
> "It appearing that the Sparks patent was a much "older patent than the Roberts patent, upon which "this suit was brought, and that the Sparks patent was "acquired many years ago by the plaintiff, and that it "long since expired, defendant's counsel endeavored "to prove by Luther Wagoner, an expert introduced "by the defendant, that a mechanic skilled in the art, "to which these machines relate, could build the "Roberts machine without the exercise of any inventive "faculty. An objection was made by the plaintiff's to "this testimony, which exception was sustained by the "Court, defendant excepting."

REPLY—The trouble in this case was, that Luther Wagoner, the alleged expert, did not appear to be an expert in the matter referred to. It was admitted that the witness was an expert civil engineer and mining expert, but the witness himself, (folio 202, Record) testifies that he had never any practical experience with coal machines. In fact, his whole testimony shows that he had no appreciation of what the patented invention in this case was. According to his ideas, it was simply a machine that had a hopper, a screen and a gate. (See p. 119 Record.) A simple perusal of his testimony will show that he was one of that class of egotistic, puffed up, self-important individuals, such as can be readily

picked up in almost every community, who believe that they are capable of deciding any question, no matter how complex or foreign to their calling it may be, and who think that their superior knowledge and intellect would enable them to produce, without the exercise of invention, a telephone, a phonograph, or most anything for which the Government grants a patent. Such men in their own eyes are experts, *par excellence*, but it is fortunate for the interests of "science and the useful arts," which our Constitution desires to promote, that the law requires an expert in patent cases to be familiar *with the art to which the invention relates.*

By the self confession of this witness he had no knowledge of coal screening machines, except such as he had acquired in a "comparatively short time" (folio 199 Record) while employed so to do by the defendant (folio 200, Record). He does not come, therefore, in the category of experts whose opinions should have weight in the art of discharging coal from vessels, consequently the ruling of the Court was correct. The same reasons sustain the Court in its ruling on the 11th and 12th specifications, which are practically a repetition of the 10th specification.

THIRTEENTH SPECIFICATION.

> "The Court erred in holding that Exhibit K was not "shown to be a correct representation of any machine "ever known or constructed, and therefore ruling out "testimony relative to the construction and the action "of the device delineated in said exhibit."
>
> "Exhibit K being a drawing of defendant's machine "used at the Black Diamond Coal Mine."

REPLY—Exhibit K was a drawing which purported to be a representation of a device which was in use at the Black Diamond Mine in 1873, (folio 186, Record). The witness,

Jones, it appears, made a rough plan from memory just before the trial (nearly twenty years after he claims to have seen the device). He gave the rough plan to the *speedy* expert, Wagoner, who reproduced it into the drawing Exhibit K. But it appeared from the testimony of Jones, (folio 190, Record) that it was not authentic. He says: "This, (referring to the Exhibit) is *very nearly* a reproduc-"tion of what I suggested." Under such circumstances, we submit, the Court was justified in ruling the exhibit out. But the record does not show that the Court did rule it out. The sustained objection referred to, was to an independent question which was improper in itself, to wit: "If a hopper "with an upper gate and chute below it, and lower gate had "been used, either at a coal mine where coal was extracted "from the mine, or at any other place, with a screen, if a "mechanic skilled in his art or skilled in the art to which "that appertains, could reproduce a portable machine "like the plaintiff's model, without the exercise of inventive faculty?" This was the question (folio 214, Record) that defendant asked, and the objection to which the Court sustained. *The question entirely ignored the essential element, to-wit: The reservoir of plaintiff's machine.* If defendant's specification refers to the proceedings at folio 259, Record, then it fails because in that instance the Court simply ruled that defendant "ought to confine the testimony to a comparison of "those models that have been "shown to be correct," a legal proposition that the merest tyro in law would recognize as sound.

> The 14th, 15th and 16th specifications raise the question whether the witness L. W. Seely was an expert.

REPLY—The Court admitted the testimony on the ground that the witness was an expert *in a certain line*, to wit: In

explaining the specification of the patent; pointing out its features; comparing the original and the reissued patents on the question whether they were for the same invention, etc., and the witness was only used by the plaintiff for these purposes. The record discloses his qualifications (folio 279,284, Record), and we submit that few experts in patent causes can show such an extensive experience, knowledge and skill, both scientific and mechanical, theoretical and practical, as was shown by this witness. It is a well settled principle of patent law that expert evidence may aid in determining identy (Page vs. Ferry 1. Fish. 298) and for this purpose the witness was undoubtedly well qualified. In the direct examination of the witness his testimony was confined to legitimate limits within his established qualifications, and if the witness testified outside of that sphere it was the defendant counsel himself that drew it out in cross-examination. It is not necessary to discuss this proposition, because a simple examination of the record will confirm it.

SEVENTEENTH SPECIFICATION.

> "The Court erred in refusing to strike out the "testimony in relation to the operation of the machine "owned by the Oregon Improvement Company, in which "it was testified that the coal could not be controlled "and thereby covered up the horse and cart used for "the transportation of the same."

REPLY—In his direct examination (folio 310 Record) the witness, Morrison, testified distinctly that it was one of the machines belonging to the Oregon Improvement Company that covered up the horse and cart, and his testimony was not objected to. Further than this, the question was whether a coal receiving, screening and delivering machine which had no reservoir could be successfully operated. The witness testi-

fied "Decidedly No," and then cited an instance which was received in evidence without objection. Under these circumstances the Court was justified in denying motion to strike out.

EIGHTEENTH SPECIFICATION.

> "The Court erred in permitting the witness Linehan, "introduced by plaintiff to testify as an expert, relative "to the practicability of the Sparks machine, so called, "when it was shown that he was not an expert and "knew nothing of its operations."

REPLY—Linehan was more than an expert. He was a practical operator of such machines, having for twenty years operated and superintended the patented machine. The opinion of such a witness is undoubtedly valuable as to the practicability of other machines to do the same work. It does not appear that the Sparks machine was ever used at all by anyone, but it does appear (p. 37, Record), that it would not be a practicable machine for the purpose that complainant's machine was used for, and this expert confirms such former testimony, and he gives his reasons for such testimony. If his reasons were not good, the jury would undoubtedly give it no weight, but the Court was justified in permitting the opinion of the witness backed by his reasons why it was impracticable, to go to the jury.

NINETEENTH SPECIFICATION.

> "The Court erred in permitting the witness Roberts "to testify as to the suit of Martin R. Roberts vs. "James Flannigan, et al., brought in this Court in "March, 1876, on the ground that it was irrelevant and "not competent under the pleadings, and that the "papers in the case are the best evidence."

REPLY—The attorneys for defendant evidently overlooked

the fact that the judgment roll in the case referred to was offered and received in evidence. It will be found at the middle of page 184 Record.

TWENTIETH SPECIFICATION.

> "The Court erred in not permitting defendant's "counsel to cross-examine the witness Roberts in rela- "tion to the case of Excelsior Coal Company vs. R. D. "Chandler, a case tried in this court, and in which this "witness was the real plaintiff, and in which the Sparks "machine was charged by plaintiff to be the infringed "machine, (this witness having testified that the "Sparks machine is an impracticable machine) and in "which case it further appears that there was a judg- "ment of this Court that the Sparks patent had been "infringed, and that it was a new and useful inven- "tion."

REPLY. On the other hand the Court ruled that defendant could cross-examine the witness in regard to any matters as to the practicability of the Sparks machine (page 185, Record, near the top) and it did not refuse to permit defendant's attorney to cross examine the witness in regard to the case referred to in the Specification. The attorney for defendant it appears, (page 185 Record) offered to make proof in the lines referred to, and the Court ruled that such proof was relevant, but for some reason best known to the attorneys for defendants, they failed to take advantage of the Court's ruling.

THE REAL ISSUES.

The only issues that can be raised under the pleadings are:

(1). Lack of invention.

(2). The validity of the reissued patent.

(3). Dedication to the public.

(4). Non-infringement.

LACK OF INVENTION.

No attempt was made at the trial to defeat the patent on this ground. The Sparks and Plimsoll patents, both prior in date to the patent sued on, were introduced in evidence, and evidence was introduced regarding the bunkers which were used at the Black Diamond Mine prior to plaintiff's invention. But no notice having been given thirty days before the trial, these prior devices were only useful to show the state of art prior to plaintiff's invention. None of them showed an organized machine capable of accomplishing the results that plaintiff's machine accomplished. None of them contained the combination of elements that plaintiff's machine contained. The reservoir, which was the essential element of plaintiff's machine, was not contained in either of said machines. The evidence shows conclusively that the addition of this element enabled plaintiff's machine to accomplish what none of said prior machines could accomplish or were intended to accomplish. The question then arises, as follows: In view of the state of the art developed by these prior devices, would it require the exercise of the inventive faculty to produce plaintiff's machine? It is abundantly proven in the record that plaintiff's machine was the first to supply a long existing want; that it went into immediate and successful use; that its efficiency depended upon the reservoir, which is an element of every claim of the patent.

This establishes invention.

O'Reilly vs. Morse, 15 How. 119.
Hill vs. Biddle, 27 Fed. Rep. 560.
Asmus vs. Alden, 27 Fed. Rep. 684.
Sax vs. Taylor Iron Works, 40 O. G. 118.
Wallace vs. Noyes, 21 Blatch 83.

Bruce vs. Marder, 20 Blatch, 355.

Smith vs. Goodyear Dental Vulcanite Co., 3 Otto 486.

Honschill Co. vs. Neelson, 1 Web. 673.

Consolidated Valve Co. vs. Crosby Valve Co., 113 U. S. 157.

Zinsser vs. Ksemer, 39 Fed. Rep. 111.

Palmer vs. Johnston, 34 Fed. Rep. 336.

THE PRIOR PATENTS.

These prior patents cannot be used to invalidate plaintiff's invention.

Grier vs. Wilb, 120 U. S. 412.

No objection was made to the introduction of the Sparks patents and the Plimsoll (English) patent, because none was necessary. For the purpose of showing the state of the art they were admissible, but unless proper notice of their introduction had been given they could be used for no other purpose.

Odiorne vs. Darmy, 13 O. G. 965.

Foote vs. Silsby, 14 How. 218.

But taking an ultra view in that respect, neither of these prior devices can anticipate plaintiff's invention, because plaintiff's machine contains elements (the reservoir) and performs functions that neither of said prior machines can accomplish, and which they were not intended to accomplish, and therefore the case would come directly within the decision of this Court in *Cantrell vs. Waldeck, 117 U. S. 689.*

The testimony shows that neither of the two Sparks machines could be used in the way, and for the purpose plaintiff's machine is used. The first Sparks Machine, Letters Patent No. 49,932 (page 97, Record) is a small elevated box, three feet square, into which the coal is poured by hand by a

person standing on the platform. It had no reservoir located below a storage hopper by means of which the flow of the coal can be regulated in its passage to the cart like plaintiff's machine. It has no means for compelling the coal to pass slowly over the screen like plaintiff's machine, but after the coal is liberated by the gate it will rush in a body over the screen without screening. If the inventor had employed a properly constructed hopper and located a gate at or near the lower end of the screen-chute, he would have been able to screen and regulate the coal, and he would have provided a reservoir between the storage hopper and cart that would have adapted it for receiving the coal from a swinging bucket and continuously supply and deliver the coal into carts. But these elements were wanting, and these are the elements that makes plaintiff's machine practicable.

For the very same reason the Sparks machine covered by Letters Patent No. 96,991 (page 99, Record) failed to accomplish the results of plaintiff's machine. The hopper in this case is an utterly impractical hopper for this purpose. Its sides slope towards a central opening where the outlet passage and gate are located so that it is impossible to operate the gate. The coal will form an arch or bridge over the opening so that it cannot pass out of the hopper, and if it should it would rush over the screen without control. It could not be checked, nor could the gate be closed against it. All this is shown by the testimony. Hence it does not accomplish the results of plaintiff's machine, nor does it contain the elements of the patented claims. The Plimsoll machine is so utterly foreign in its construction and in its use and application from plaintiff's machine, that it is not worth the time and space to discuss it.

VALIDITY OF THE RE-ISSUED PATENT.

The file wrapper and contents (pages 44-96, Record) shows that the application for the original patent was filed on the 26th day of April, 1873, and was issued on the 17th day of June, 1873; that the patentee filed his application for the first reissue on the 4th day of August, 1873; one month and eighteen days after its issue. After the patent was issued it took six days for it to reach the patentee from Washington, and it took his reissue application six days to go from San Francisco to Washington, D. C. This takes away twelve days, leaving only about one month in which the patentee not only investigated the condition of the original patent but also prepared and forwarded his reissue application. If this was not diligence it would be difficult to define that condition. It shows conclusively that the original patent was not on inspection satisfactory to the patentee, and that he took immediate steps to correct it.

The application for the first reissue was filed August 4th, 1873, and the first reissue patent was issued January 5th 1875, one year and five month's in the patent office contending for his rights.

On the 10th day of July, 1876, six month after the issue of the first reissue patent, the applicant filed his second application for a reissue, and this patent was issued on the 10th day of October, 1876. Thus the applicant was almost continuously in the Patent Office contending for his rights from April 25th, 1873, until July 10, 1876, a degree of dilligence and pertinacity that is seldom equaled.

An inspection of these several issues will show that no alteration whatever was made in his drawings, and that the wording of his original specification was only changed in order to make definite his meaning and invention without enlarging its

scope. The case comes, therefore, directly within the decision of this Court in the case of *Topliff vs. Topliff*, 145 U. S. 156, which fixes the law on the subject of reissues.

INFRINGEMENT.

The coal screening machine used by the defendant was a portable machine. It had an elevated hopper for receiving the unscreened coal from a swinging suspended tub or bucket. It had a reservoir located over the screen, below the receiving hopper, and a gate for controling and regulating the flow of coal over the screen through the chute into the cart. It contained every element of the first, second, third and fourth claims of plaintiff's patent. (The fifth claim was withdrawn as defendant's hopper was not elongated.) It operated in the same way and produced the identical same results as plaintiff's machine. Therefore it infringed.

The third claim of plaintiff's patent covers the metal blank or false bottom for covering the screens in order to convert the machine from a screening into a non-screening machine. Cornwall, the president of the defentant corporation, testified (folio 236-237, Record) that when defendant was charged with infringing upon plaintiff's patent he (it) covered up the screen on its machine, and continued to use them for discharging unscreened coal, and that after that it used plaintiff's machine under a royalty for discharging and screening coal. Defendant was thus paying royalty to plaintiff for using a machine which contained the elements of claims 1, 2 and 4 of plaintiff's patent, while at the same time, by its own admission, it was using its own machine which contained claims 1, 2, 3 and 4 of plaintiff's patent, without paying any royalty for its work.

The testimony shows (folio 248, Record) that the defendant used plaintiff's machine for a period of about five years and paid plaintiff a royalty during all that time, before it built the infringing machines. This admission places defendant in a bad light.

If the prior art was what defendant claimed it to be, and was known to it, why did it ever pay royalty to the pantentee? Why did it not adopt the old machines used at the Black Diamond Mine instead of paying royalty to plaintiff to use his machine? and why did they go back to the use of the patented machine after suit was commenced against them?

The claim that these ancient machines were an anticipation of plaintiff's invention loses its force in the light of these admissions. We submit, therefore, that the verdict of the jury, and the judgment of the lower Court was correct and should be sustained.

Respectfully submitted,

CHAS. R. MILLER,
For Defendant in Error.

JOHN L. BOONE, of Counsel.

136-611
156-611

Supreme Court, U. S.
JAN 21 1895
JAMES H. McKENNEY.

IN THE

Supreme Court of the United States.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL MINING COMPANY,
PLAINTIFF IN ERROR,

vs.

THE EXCELSIOR COAL COMPANY.

IN ERROR TO THE CIRCUIT COURT OF THE UNITED STATES FOR THE NORTHERN DISTRICT OF CALIFORNIA.

BRIEF FOR THE DEFENDANT IN ERROR.

CHAS. R. MILLER,
Counsel for Defendant in Error.

JUDD & DETWEILER, PRINTERS, WASHINGTON, D. C.

IN THE

Supreme Court of the United States.

OCTOBER TERM, 1894.

No. 200.

THE BLACK DIAMOND COAL COMPANY, PLAINTIFF IN ERROR,

vs.

THE EXCELSIOR COAL COMPANY.

BRIEF OF ARGUMENT.

In the trial of this cause in the circuit court, before Judge Hawley and a jury, there were thirty-nine assignments of error noted; all of which are claimed errors on the part of Judge Hawley. It is hard to conceive of a case in which so learned a judge would make so many errors.

I am very sure that an examination of the record will demonstrate that there was no error in the trial of the cause below, and that the exceptions noted come clearly within the ruling of this Court, as announced in the case of Lancaster *vs.* Collins (115 U. S., 222), opinion by Mr. Justice Blatchford, in which it was held that—

"No judgment should be reversed in a court of error when it is clear that the error could not have prejudiced and did not prejudice the rights of the party against whom the ruling was made."

I take it that the question for consideration here is whether or not substantial justice was done to the parties in the trial of this cause.

THE INVENTION.

"The Pacific coast is supplied almost exclusively with its coal for fuel purposes by transportation in vessels, and it is principally landed on the wharves in San Francisco from ships which transport it from long distances, some through tropic climates (Australia and English coal, for instance), during which transit it becomes slacked, and when it arrives in San Francisco it is what is called dirty coal. The other source of its coal is from Puget sound, in the State of Washington, and Coos bay, in Oregon. All of these latter coals are of the soft bituminous kind, which not only slacks readily, but is broken easily by handling.

"Prior to 1873 all coal landed in San Francisco and other Pacific coast ports was dumped directly upon the wharf when taken from the ship. The vessel which carried the coal was moored against the wharf and the coal was hoisted from the hold in swinging tubs or buckets, which, when filled and hoisted, were swung out over the wharf and turned upside down, so as to dump the coal in a pile on the wharf, which sometimes reached fifteen and twenty feet in height. This coal was then sold to retail dealers, who shoveled it into carts and hauled it to their respective yards, where it was screened in order to separate the fine coal from the larger or merchantable coal, which was required for retail trade. This left every coal yard with a pile of screenings or fine coal, which was hard to dispose of until a quantity large enough to pay for hauling away was accumulated, and even then it was sold at a very low price. During the process of dumping the coal from the swinging bucket upon the wharf or pile of coal upon the wharf much of it was broken by the impact of the fall, and the frequent handling was wasteful and damaging to the coal. Again, these coal

piles on the wharves were such a menace to the wharves themselves, often crushing and destroying them, that laws and ordinances were passed prohibiting the depositing of coal thereon above a certain quantity or weight."

Such was the condition of the coal traffic when Captain Roberts came upon the field. He was at the time engaged in the transportation of coal by boats, and knew of the difficulties and losses which beset the business. The object which he sought to accomplish was to provide—

"A portable combined coal receiving, screening, and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket by which it is hoisted from the hold of a ship or other water craft, and to screen it automatically and deliver it into carts."

The apparatus invented by Captain Roberts was the first of its kind devised to and which did remedy the evils of the coal trade on the Pacific coast. It was a successful pioneer in the art as distinguished from the failures of the art which always appear resurrected from the dead and forgotten of the past as anticipations in this class of cases. The Roberts device went into immediate use, and today is universally employed upon the coast.

As evidence of the novelty and utility of the device in question, the plaintiff in error used the device until January, 1887, paying the defendant in error a royalty therefor. These dates become important also when we consider the question of reissue and thoroughly dispose of any claim of intervening rights.

What is the device in question?

(1.) It is portable, so that it may be moved along the wharf from ship to ship.

(2.) It is a receptacle into which coal is dumped from the buckets by which it is removed from the hold of a ship.

(3.) It has a reservoir adapted to be used either with or without a screen, by means of which the flow of the coal from the machine is regulated and controlled, so that the instant the receiving carts are loaded the flow of coal can be shut off.

(4.) It has a gate at or near the end of the chute sufficiently high from the wharf to allow vehicles or carts to be placed so as to receive the coal direct as it is discharged from the chute and cut off the flow when the cart shall have been filled.

The combination of these features constitute the patented device. The combination of the whole producing—

"A portable coal receiving and delivering apparatus arranged to receive the coal or other cargo from a swinging suspended tub or bucket, by which it is hoisted from the hold of a ship or other water craft, and to screen it automatically and deliver it into carts."

When it was produced by Captain Roberts it was so simple that we wonder that it was not produced before; yet that very fact of simplicity and the existence of a demand for just such a machine put it at once into general use and demonstrates by the best possible evidence its novelty and utility.

Counsel for the plaintiff in error have, out of the thirty-nine assignments of error noted in the trial below, singled out six specifications of errors to be relied upon in this hearing.

FIRST SPECIFICATION OF ERROR.

"The court erred in holding that the patentee was not guilty of unreasonable or unnecessary delay in applying for the reissued patent sued on and instructing the jury to that effect."

It is unquestionably a question of law for the court to determine whether or not there was unreasonable or unnecessary delay in applying for and procuring said reissue. It is also equally true that what is unreasonable delay is a question which must depend upon the circumstances of each case, and it is also reasonable to suppose that a trial court having before it all the facts of the case would be apt to reach a reasonable conclusion upon this point. In the case at bar the application for the original patent was filed April 26, 1873, and the patent was issued on the 17th day of June, 1873. The first application for reissue was filed on August 4, 1873, one month and eighteen days after the original issue. After the patent was issued, it took six days for it to reach the patentee from Washington, and it took his reissued application six days to go from San Francisco to Washington, D. C. This consumes twelve days of the intervening time, leaving only about one month in which the patentee not only investigated the condition of the original patent, but also prepared and forwarded his reissue application.

Letters patent were issued upon this first application for a reissue January 5, 1875.

On July 10, 1876, one year and six months after the first reissue, application was filed for a second reissue, and this patent was issued on the 10th day of October, 1876. Thus the applicant was almost continuously in the Patent Office

contending for his rights from April 25, 1873, until October 10, 1876—a degree of diligence and pertinacity that is seldom equaled.

Counsel for plaintiff in error very ingeniously contends that the time intervening between the original issue and the last reissue is the time to be considered, and that the first or intervening reissue is not to be taken into consideration in determining the question of delay; but he fails to call to the attention of the court the fact that there were no intervening rights, and that the plaintiff in error was at that time and for years after the reissue in question using the patented device and paying a royalty therefor. Are they now in a condition to raise any such question? We think not, and that the argument of counsel, manifestly unfair as it is, must fail.

For it is conceded by counsel (Record, page 183) that the only difference between the first reissue and the second reissue is claim one of the patent in suit. Therefore if there was a delay of only one month and eighteen days in filing an application for the first reissue, which embodies the second, third, fourth, and fifth claims, certainly the question of unreasonable delay cannot be raised as to those claims.

As to claim 1, which counsel concede to be the only difference between the first and second reissue, in considering the question of delay we start out with the fact that there were no intervening rights; that the preceding application had been pending in the Patent Office one year and five months, during which time there had been an appeal to the Commissioner, with all its attending expense. This fact, together with the testimony of Mr. Roberts to the effect that for eight years he was financially embarrassed and harassed

in getting his machines made for use, together with the fact that by reference to the file-wrapper (Record, page 54), this first claim in question was by manifest inadvertence omitted from the first reissue, we contend fully warranted the court in finding that there was no unreasonable delay in applying for the reissue here in question.

Shaw *vs.* Colwell Lead Company, 11 Federal Reporter, 711.

SECOND SPECIFICATION OF ERROR.

"The court erred in holding that the reissued patent was for the same invention as the original and instructing the jury to that effect."

There is a manifest difference between enlargement of invention and enlargement of claim. It is conceded, and cannot be denied, that the authorities all support the position that an applicant for reissue has the right to claim in his reissue what was shown by the drawings and specifications to have been part of his original invention. It is conceded on behalf of the counsel for plaintiff in error, in the course of his argument, that the only claim which does not appear in practically the same language in the other patents is the first claim of the reissue now in question. That this claim was manifestly a part of the original invention can readily be determined by referring to the specification of the original patent (Record, page 56), in which it is recited:

"My invention relates to a portable apparatus which is intended more particularly for receiving, cleaning, and delivering into cars coal and other like substances which are usually dumped upon the wharf in discharging.

"The usual method of discharging ships of their cargo of

coal is to raise the coal from the vessel in tubs by a steam-hoisting apparatus, and dump it in a pile upon the wharf, from which it is removed by cars to the different coal yards, where it is screened, so as to separate the finer portion of screenings from the large and marketable or more merchantable portion.

"My invention consists of a portable apparatus having a double-hopper chute screen, so arranged that by dumping the coal or other substance to be handled from the tub into the upper hopper the fine portions or small particles will be separated in two or more grades from the coarser portions and be deposited in separate piles, while the coarser pieces are caught in the second hopper, from which they can be conveyed through a chute into the carts which convey them to the coal yards, thus requiring but one operation to discharge the cargo, screen the coal, and load it into cars."

Again, in the specifications (Record, page 57), he describes the means by which the device is made portable, so that reading the claim, to which counsel for plaintiff in error objects, in the light of the specifications, it is manifest that this claim was clearly indicated in the original specifications as part of the original invention.

It is not a broad claim, covering any character of device, but specifically and by terms directs that said apparatus is constructed substantially as described in the specifications.

Counsel for plaintiff in error contends that even though this first claim of the reissued letters patent here in issue may be valid, that the four other claims of said letters patent cannot be valid, because they are the same claims as those found in the first reissue, and that there cannot be two valid patents for the same invention, and therefore the four claims of the reissue in question must be invalid. He cites a number of decisions of this honorable Court which do in

fact hold that two valid patents cannot be issued and be in existence at the same time, covering the same invention, and this point is not controverted; but counsel for plaintiff in error either does not know or has lost sight of the fact that before a reissued patent can be finally issued the original patent must have first been surrendered to the Government, and is therefore no longer in existence.

We believe that this case comes clearly within the rule as announced by Mr. Justice Brown in the case of Topliff *vs.* Topliff (145 U. S., 156), which fixes the law on the subject of reissue. The Court therein says:

> "To hold that a patent can never be reissued for an enlarged claim would be not only to override the obvious intent of the statute, but would operate in many cases with great hardship upon the patentee."

THIRD SPECIFICATION OF ERROR.

"The court erred in the construction which it gave to the patent sued on and the claims thereof."

It must be remembered that this was an action at law; that the defendant in the trial below set up a general denial and averred anticipation, but failed to set forth any anticipating patents or devices. The record shows that there was no notice served upon the defendant in error before the trial of the cause setting forth any anticipating patents or devices, and while the patents which were introduced in evidence were properly introduced for the purpose of construing the patent, they were not and could not be used to invalidate the patent in suit.

Grier *vs.* Wild, 120 U. S., 412; Robinson on Patents, section 1006.

The court therefore had nothing else to do in construing these claims except to instruct the jury as to the manifest meaning of the terms therein used. He could not under the pleadings and the law instruct the jury that any of said claims were invalid by reason of anticipation, and indeed counsel for plaintiff in error practically admit that they were not invalid in the following quotation taken from page 23 of his brief filed in this cause:

"It is to be observed that there is a difference in the details of construction between the Roberts and Sparks devices. Roberts has an elongated hopper, while Sparks has a square one. Roberts has a reservoir, while Sparks has none other than the hopper itself. In the Roberts machine the regulating gate is placed at the lower end of the chute, while in Sparks' it is placed at the upper end."

These differences are just the differences that made the Roberts machine successful over the Sparks device. The testimony discloses the fact to be that the Roberts machine went immediately into use, while the Sparks machine never went into use and was never applied to the purposes for which it was claimed it was intended.

In considering the first claim of the patent in suit, it is contended that the whole claim is void, as a matter of law, because the mere element of portability is not patentable. The element of portability is one element only of the claim, and it in combination with the other elements of the claim go to make up a complete operative device capable of performing functions which have never been performed before and which were desirable and new at that time.

There is no specific exception to any charge made by the court in relation to this particular claim in the record, and

therefore no question involving the same is properly before the court.

The only instruction of the court on the subject is found on page 192 of the Record, and is as follows:

"In regard to the construction of plaintiff's patent, I instruct you that it is not limited to a device in which a screen is one of the elements—that is to say, it is not limited to a screening device—but it also includes a device for delivering coal from the hold of a vessel and passing it through a hopper and a reservoir having a solid bottom and a chute and a regulating gate. Sometimes it is used as both a screening and delivering device; at others it is used simply as a delivering device without screening. If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute, which extends from the receiving hopper, instead of having a screened bottom, then I instruct you that such a device is also covered by the patent and is an infringement."

That this instruction was manifestly correct is shown by reference to the specifications of the patent in suit, where it is expressly stated that the device may be used either as a screening device or as a coal-delivering device. It is also apparent from the record that the plaintiff in error used the device both ways.

The infringing devices when first constructed were made and used from January, 1877, until the filing of this suit, in November, 1888, with a screening bottom in the chute, and immediately after the commencement of this suit a metal covering and subsequently a plank covering, independent of the machine itself, was placed over the screen, and the machine continued to be used as a coal-delivering machine. But the president of the plaintiff in error admits that the principle was the same. (Record, page 142.)

FOURTH SPECIFICATION OF ERROR.

"The court erred in the instructions which he gave touching the question of infringement."

Each one of the several claims in issue, to wit, the first, second, third, and fourth claims (the fifth claim having been withdrawn at the trial of the cause below), covers the complete device; and however narrow the construction which the court could have and did place upon the claims in question, the jury found that they were infringed. The finding of the jury as to infringement is a question of fact not reviewable in a court of error; therefore if there is any error upon this question it must be in the charge of the court to the jury upon the question of infringement. The specific language of the court excepted to is as follows (Record, page 192):

"If, therefore, you find that the defendant has used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute, which extends from the receiving hopper, then I instruct you that such a device is also covered by the patent and is an infringement."

We contend that the question of infringement is one of fact to be determined by the jury, and in their consideration of it it becomes a question as to the substantial identity of the two machines. In the first place, the identity must reside in the idea of means embodied in each device. In comparing these ideas of means it must be borne in mind that identity with reference to infringement does not require that each idea shall be the exact counterpart of the other. The idea covered by the patent must be completely em-

braced in the idea expressed in the infringement, but the latter may be more comprehensive than the former. The instruction of the court on this question was substantially that if the defendant had used a device substantially identical with the device shown in the patent, then it was an infringement, and we contend that this was a correct instruction, but there were several claims of the patent under consideration which provided for means by which the screening portion of the device could be covered up and the whole device thus converted into a coal-delivering device, and to cover these claims the court instructed the jury that if the defendant used a device substantially identical with the device shown in the patent, but having a solid bottom to the reservoir and chute, then that was an infringement, and we maintain that this was correct for the reason that such a device would undoubtedly be within the domain of the patent.

Indeed, by reference to the Record (page 134) we find that the president of the plaintiff in error said to the workmen who constructed the infringing device, "If possible, dodge what Captain Roberts claims to be a patent upon which we are paying him money."

Two machines were built under these orders, and after this suit was commenced in the lower court a metal blank was put over the screen without changing in any way the organization of the machines. In describing this metal blank Mr. Roberts says (Record, page 142, folio 250):

"It was made of an iron plate. I suppose it is a little thicker. It is not the ordinary thin sheet iron. It is an iron plate that is perhaps, I guess, what is called No. 10 iron and possibly No. 8. *It could be taken out.* When it was out the machine was a screen, and when it was in I think it is

correct to call it a chute or a screen with a sheet-iron cover over it or iron plate over it. This was used for the purpose of running coal through that we did not screen. We soon found we had no house coal (lump coal); that the coal we were sending out was a steam coal; and we put that plate in there and fastened it there and run it that way as a chute. We screened about one thousand tons of coal, I think. I then went to work and made a second machine, which was purely a chute. When the metal blank was in, of course you couldn't screen coal; it acted as a chute. *In our second machine we had no screen, but the principle was the same.* It may have been a little more convenient. I suppose it was. One machine screened the coal; the other did not. One was to screen the coal if it didn't have that cover over it and the other was not. *If they had not been of use to our company I should not have used them.*"

Thus we have the admission of the plaintiff in error that the principle is the same whether the screens be covered or not, and that both forms come within the terms of the claims of the patent.

There was no request for separate findings as to the infringement of the claims of the patent, and a finding of infringement by the jury as to any one of them would sustain the verdict.

Prior to that time the plaintiff in error had been using the machines of the defendant in error and paying a royalty therefor, and after the filing of this suit in the lower court they resumed the use of the machines of the defendant in error or paid them a license for the use of their own machines.

FIFTH SPECIFICATION OF ERROR.

"The court erred in the instructions which it gave touching the measure of damages and the manner of computing the same."

The instructions excepted to are found on pages 192 and 193 of the Record, and we contend are manifestly correct. Counsel for the plaintiff in error have cited a number of decisions on the subject of damages, most of which are of cases in equity and have no application whatever to the case at bar.

The first distinction to be made is that between the measure of recovery in equity and the measure of recovery at law. The theory of a suit in equity for infringement is entirely different from that at law. In law he is regarded as a mere wrong-doer, compelled to make compensation for the injury he has inflicted, while in equity he has a double character, being first treated as a species of agent or trustee, practicing the invention for the benefit of its true owner and obliged to pay to him the profits of the enterprise, and then, if in the judgment of the court the interests of the plaintiff so required, mulcted as a tort-feasor in a sum sufficient to redress the injury which the plaintiff has sustained. In actions at law the rule of damages further provides that upon proper evidence the jury shall allow the plaintiff actual damages. Actual damages are an idemnity for injury inflicted and compensation for a loss sustained. Their amount is to be measured by the direct and immediate evil consequences to the plaintiff of the wrongful acts of the defendant. Each case must stand upon its own facts and be illustrated by its own evidence, admitted and weighed in

accordance with the general rules of relevancy and credibility.

The evidence in this case shows (1) that the patented machines made by the defendant in error were the only ones in use upon the wharfs of San Francisco prior to the infringement by the plaintiff in error; (2) that the plaintiff in error had up to the time of infringement used the machines of the defendant in error and paid a fee therefor; (3) that after the filing of the petition in this case the plaintiff in error resumed the use of the patented machines for screening coal and paid therefor; (4) that the defendant in error received an average price of ten cents per ton for each ton of coal delivered through its machines, and that it cost it to maintain and operate said machines about five cents a ton, leaving a net profit of five cents a ton; (5) that during the term of infringement the plaintiff in error delivered 176,618 tons of coal through the infringing machines, which, together with the testimony in regard to the profits of the defendant in error, made a mathematical basis from which the jury were authorized to calculate the damages, and did calculate the actual damages and awarded an aggregate amount of $8,830.90.

The counsel for plaintiff in error objects to the charge of the court covering this testimony on the ground that the instruction assumes that the defendant in error could have delivered the coal which was delivered by the plaintiff in error. In reply to this we have to say that the testimony shows that the defendant in error had the machines in operation upon the docks of San Francisco for the purpose of delivering its coal, and the fact that the plaintiff in error had previously used the machines and subsequently did use

the machines shows that the defendant in error would undoubtedly have delivered said coal through the patented machines but for the infringement of the plaintiff.

Each of the claims of the patent covered the entire machine. Without the features covered by the patent, the machine would have been inoperative and could not have been used by the plaintiff in error. Therefore all cases cited by the counsel for the plaintiff in error relative to the partition of damages between the patented and unpatented features of the machine are wholly outside the questions involved in this case. We contend that the instruction of the court, in view of the evidence in the case, was the only proper instruction to give, and was the only way of correctly arriving at the actual damages to the defendant in error by reason of the wrongful acts of the plaintiff in error.

Counsel for plaintiff in error also complain of the finding of the jury, because their award was for a lump sum for infringement of all five claims, and not merely for two or three claims or any number less than five. As heretofore pointed out, there was no request for a finding of fact as to separate infringement of the several claims, and inasmuch as any one of the claims covered the entire machine, if the jury found any one of the claims infringed it would be sufficient to sustain the verdict and could not be reviewed by this Court unless the verdict was excessive.

There is no exception noted to the judgment entered on the verdict, and therefore these questions cannot be reviewed in this Court.

SIXTH SPECIFICATION OF ERROR.

"The court erred in refusing to instruct the jury to render a verdict for the defendant."

In actions at law involving patents there is no such thing as a nonsuit; but the defendant may, however, request the court to instruct the jury that the testimony will not support a verdict for the plaintiff; but when any evidence is introduced by the plaintiff which could in the reasonable and legal judgment of a jury tend to support the plaintiff's cause, whether the judge would consider it sufficient or not, it must be submitted to them, and their verdict on it, if otherwise correct, must be received. Indeed, it was held by this Court in the case of Keys *vs.* Grant (118 U. S., 25) that if there is evidence on both sides of the issue the matter must be submitted to the jury unless the court would set aside a verdict as against evidence if they decided contrary to his judgment. We contend that in the case at bar the evidence was sufficient to make out a case for the defendant in error. The patent had been introduced in evidence; the title of the defendant in error thereto was conceded; the validity of the patent and its novelty and utility could not be attacked under the pleadings; there was evidence of infringement and of resulting damages to the defendant in error, and we contend that substantial justice was done to all the parties concerned in the trial of the case below.

Respectfully submitted.

CHAS. R. MILLER,
Counsel for Defendant in Error.

Office Supreme Court, U. S.
FILED
FEB 2 1895
JAMES H. McKENNEY,
Clerk.

IN THE

Supreme Court of the United States.

No. 200.

THE BLACK DIAMOND COAL MINING CO.,
Plaintiff in Error
vs.
THE EXCELSIOR COAL COMPANY,
Defendant in Error.

Reply of Plaintiff in Error to Supplementary Brief of Counsel for Defendant in Error.

M. M. ESTEE,
W. W. DUDLEY,
L. T. MICHENER,
For Plaintiff in Error.

IN THE

Supreme Court of the United States.

THE BLACK DIAMOND COAL MINING CO.,
Plaintiff in Error,

vs. No. 200.

THE EXCELSIOR COAL CO.,
Defendant in Error.

REPLY OF PLAINTIFF IN ERROR TO SUPPLEMENTARY BRIEF OF COUNSEL FOR DEFENDANT IN ERROR.

I.

The repeated and persistent statement of counsel for defendant in error, that no testimony appears in this record showing anticipation of defendant in error's patent, because no notice of the intended introduction of such testimony was previously given, is entirely incorrect. Notices were given, though they are not contained in this record; they were purposely left out of it. The proof of this is:

First. That the pleadings charge anticipation.

Second. Nearly all the testimony in the record relates to the question of anticipation. (See the two Sparks patent, p. 96 and 99 and the Plinsoll, p. 102 to 106, inclusive; the testimony of Benj. B. Jones, p. 106; Luther Wagner, p. 113; P. B. Cornwall, pp. 125 and 155; Peter Barger, p. 145.)

Third. Not one objection was interposed either to the introduction of the patents or to the testimony of the witnesses in relation to the question of anticipation, and we argue that the testimony being admitted without objection, it is admitted for all purposes to which it is applicable in the case.

II

Counsel for defendant in error also states in his supplementary brief that ten cents a ton was the ordinary charge made by the defendant in error for unloading and screening coal, and that *five cents of this amount* was profit. Counsel fails to refer to the page or folio in the record were this testimony appears. We are unable to find any testimony showing that five cents a ton, or any other amount, was the profit to defendant in error arising by reason of the screening of coal.

III

Counsel is yet more persistent in his supplemental brief, in asserting that plaintiff in error paid defendant in error royalty, and that he is estopped from denying the validity of defendant in error's patent. The record clearly shows that no royalty was ever collected by the defendant in error at any time from any body, and for the reason that no royalty was ever established by defendant or by its assignor, the patentee. The patentee and President of defendant in error testified: (Top page 22, Record.)

> "I have not had enough (of these machines) to supply the demand. We have never made a contract as to royalty, never have invited such contracts; we have never accepted of any machines, except ours, to be in use."

By Mr. Boone:

> Q. "I am speaking of your machines, have you ever fixed a royalty?
> A. No, we have never had any fixed royalty."

Repeating further down the page, Mr. Boone said:

> Q. "What I want to get at, Captain, is whether you have any fixed royalty which you charge for discharging coal from a vessel through your patented machine?
> A. No, sir."

We would not again answer this point, except we are inclined to believe that the learned counsel for defendant in error is persuaded that a charge often repeated becomes proof positive, and so we venture again to refer to the facts in the case.

It does appear in the testimony of Mr. Cornwall, p. 137 of the Record:

> "We had some coal screened by them, defendant in error; we paid them from ten cents a ton to four cents a ton. We had coal screened by them as low as four cents, five cents, seven cents, seven and one-half cents and ten cents."

And again on p. 141 of Record, the same witness says:

> "We patronized Capt. Roberts' machine as long as we were shipping any Bellingham Bay coal * * * I paid him ten cents a ton for a portion of the coal he screened; that is the highest price I paid him. I paid as low as four cents."

It thus appears that plaintiff in error paid the defendant in error for *the work he did*, and not for the right to use defendant in error's patent.

IV.

The patentee of defendant in error was a mere improver upon other inventions. See the testimony of the principal expert for defendant in error, Mr. Seeley, pp. 168, 169, 170 and 173, of the Record; also the testimony of the patentee himself, p. 25 of Record, in which it appears that coal screens were old devices, that a gate in a coal screen was old and well-known, that the screen itself, the hopper and the chute were all old, and that practically the only thing claimed to be new about it was that it was a portable machine; and even this was anticipated by Sparks, that it received coal from suspended tubs or buckets when it was hoisted from the hold of a ship, and that either after or without screening it delivered such coal into carts.

We submit that neither its "portability" or that the coal was received by the machine from a tub or bucket hoisted from the hold of a ship, or that it screened the coal automatically, or that it delivered it into carts after it was screened, or without screening, is any patentable addition to old and well-known devices.

M. M. Estee.
W. W. Dudley.
L. T. Michener.